1979

Some organizational effectiveness determinants of a Village Change Agency

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by

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A Dissertation Submitted to the
Graduate Faculty in Partial Fulfillment of the
Requirements for the Degree of
DOCTOR OF PHILOSOPHY

Department: Sociology and Anthropology
Major: Rural Sociology

Approved:

Signature was redacted for privacy.

In Charge of Major Work

Signature was redacted for privacy.

For the Major Department

Signature was redacted for privacy.

For the Graduate College

Iowa State University
Ames, Iowa

1979

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CHAPTER I. INTRODUCTION

One of the significant phenomena following the second World War was the emergence of new independent nations. One of these nations, Indonesia, fought for her independence from the Dutch. Like other newly emerged nations, Indonesia faces a wide range of problems with numerous contributing factors. Major ones are the initiating and sustaining of a nation state and the elimination of backwardness in the various spheres of life.

This introductory chapter first aims at presenting a general overview of the factors which provide a general setting of Indonesia as a nation, with special emphasis on its villages. The chapter will then further examine reasons for the quest for national development and formulate the research problems. Finally, the objectives of this study will be stated.

The Settings

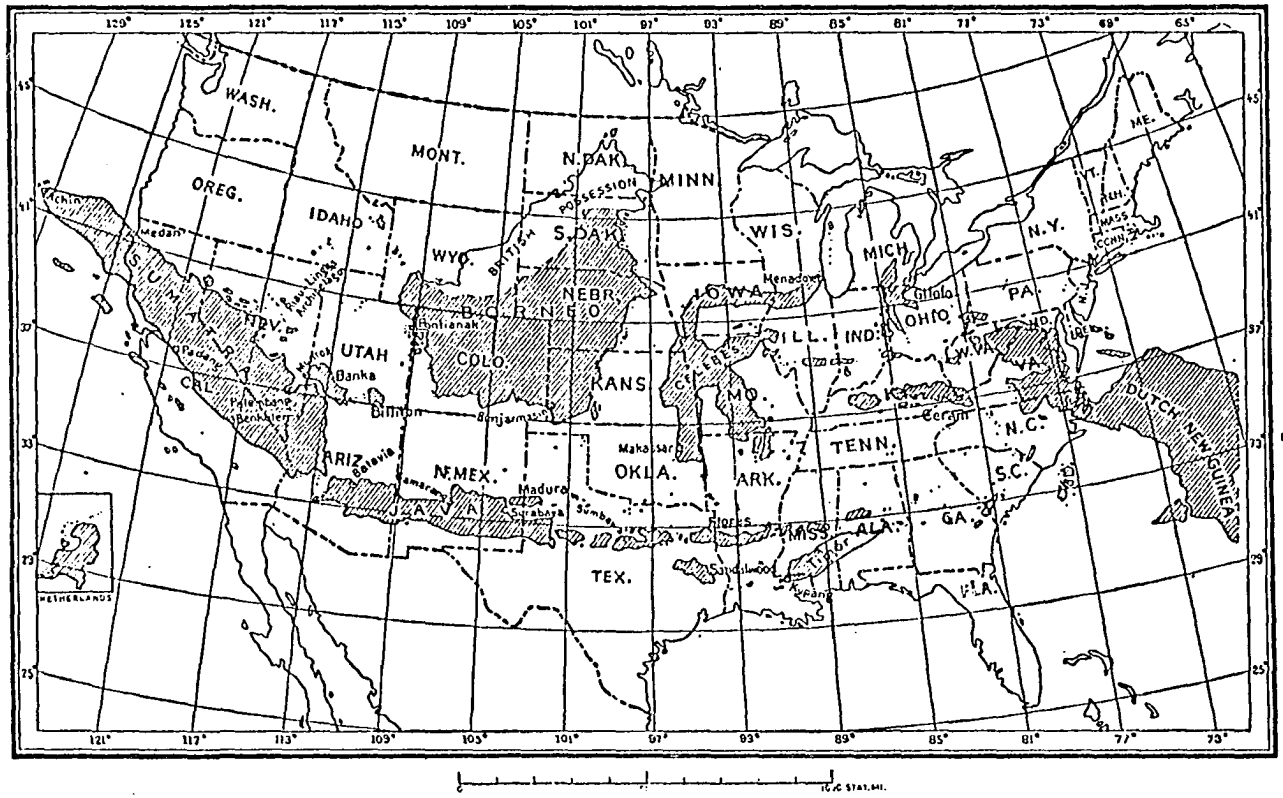
The settings include the general setting of Indonesia and of the village as well. The description of the general setting of Indonesia will include physical features, population, economic and political factors, whereas the village setting deals primarily with village life in Central Java where this study took place.

The general setting of Indonesia

With 13,677 islands, Indonesia's archipelago is the world's largest island complex. Stretching from the mainland of Southeast Asia eastward between Australia and the Philippines, it borders on three major bodies

of water--the Indian and Pacific Oceans and the South China Sea. The Republic of Indonesia embraces nearly all of this area, excluding only the eastern half of Irian, Serawak, Sabah and Brunei. The country has an east-west length of some 3,400 miles from 92° to 141° east longitude and a breath of about 1000 miles from 6° north to 11° south latitude. For the greater part it lies south of the equator which passes through the center of Sumatra and Kalimantan and through northern Sulawesi (Pelzer, 1967). Map 1 presents a comparison between Indonesia, formerly the Dutch East Indies, and the United States of America.

As with all of Southeast Asia, Indonesia has a climate dominated by the monsoons, winds which blow from one direction in one season and from the opposite point in the other. During the months of December, January and February, the wet monsoon brings rain for the paddy fields of southern Sumatra, Java and Nusatenggara. In June, July and August these areas are affected by the east monsoon which brings dry air from Australia. Rainfall rather than temperature regulates agricultural activity in Indonesia. Temperatures are nearly constant, differing only a few degrees between the warmest and coolest months, and they range from a daily low of 74°F to a high of about 88°F in the plains and between 64° and 80°F on the interior plateaus. Rainfall, however, varies greatly in timing, distribution, and amount. All of Kalimantan, all of Sumatra except for a portion of its northern tip, eastern and southern Sulawesi, Irian-Jaya and Maluku have an average rainfall of 80 inches or more. Northern and eastern Java and northern



Map 1. Indonesia, the former Dutch East Indies, superimposed on a map of the United States (comparative Map No. 2, United States Coast and Geodetic Survey: Source, Vanden Bosch, 1941, p. 2)

Sulawesi receive between 60 and 80 inches, while Nusatenggara has only 40 to 60 inches (Pelzer, 1967).

Indonesia is the fifth most populous nation of the world exceeded only by China, India, USSR, and the United States of America. The 1961 census indicated a population of 97.1 million and it is increasing at a rate of at least two per cent a year. It is estimated that in 1978 the total population was about 141.6 millions[1] (Pemerintah, Republic of Indonesia, 1974, Buku I). Obviously, this rapid population growth brings along several consequences. One of the consequences is the increase in demand on rice as the main staple food. One estimate shows that the increase in demand on rice cannot be met by domestic rice production. As a result, Indonesia may have to experience rice shortages by as many as 4.8 million tons by 1983 (Teken and Kuntjoro, 1978).

The overall average density of population in the archipelago in 1961 was 51 persons per square kilometer; this already had increased to 58 in 1971. By 1978 the figure climbed to 70. By this measurement Indonesia is not overcrowded, but the figure is highly deceptive. No less than 63.8 per cent of the total population live on the island of Java which contains only 9 per cent of the nation's territory. In 1961, the island of Java had an average density of 477 per square kilometer, whereas the rest of Indonesia had an average density of just over 19 persons per square kilometer. It is estimated that the density by 1978 could be 660 for Java and 28 for the rest of Indonesia respectively

[1] The population estimate does not include the East Timor, the former Portuguese colony, which became a part of the Republic of Indonesia in July, 1976.

(Pemerintah Republic Indonesia, 1974, Buku I, p. 85; Pelzer, 1967, p. 13).

There are over three hundred different ethnic groups in Indonesia, each with its own cultural identity, and more than two hundred and fifty languages are spoken in the archipelago. Religious beliefs, too, are varied. Nearly all the important world religions are represented in addition to a wide range of indigeneous ones (Geertz, 1967; Cooley, 1968).

Indonesian economy is marked by two structural characteristics, that is, island fragmentation and technological dualism. The island fragmentation is closely related to the geographic and human resources already discussed. It is also, however, partly a result of the economic policies of the colonial government, particularly during the last century. The economy, under colonial power, was not balanced and integrated to serve the needs and interest of the populace on all the various islands. Instead, a geographic dualism developed between Java and the Outer provinces. In both areas two types of production are to be found: that geared to meeting the immediate needs of the population, and that oriented to international commerce. On Java, where especially between 1830 and 1870 the population grew dense, crowding the limited island, food production and domestic consumer manufacturers dominated the economic field. On the Outer islands (Sumatra, Kalimantan, Sulawesi, and East Indonesia) where population was sparse and land more plentiful, economic activities were oriented toward plantation and small holder production of agricultural commodities (such as

rubber, coffee, copra, and spice) for export trade. It was in the Outer islands, too, where extractive industries to exploit mineral resources were most vigorously developed (Paauw, 1967; Cooley, 1968; Geertz, 1968; Boeke, 1942). This pattern remained basically unchanged after independence, with the result that economic activity on each major island continues to be oriented more toward the economy of that island itself and outward to foreign countries than toward national inter-island markets. Political independence in 1949 was not accompanied by economic independence; rather the colonial pattern of the economy, with control vested in Western or Chinese hands, continued intact for at least a decade.

The second major structural characteristics of the Indonesia economy is technological dualism. There are two distinctive contrasting sectors. The traditional sector, whether in the agricultural or the home industry sphere, is indigeneous and labor-intensive with a minimum of capital investment. It is dominated by ethnic Indonesians and exists on all the islands. In contrast is the modern sector, which is capital intensive and operates in plantation agriculture, mining and industry, and also in transport, communication and public utilities. Because of the heavy demand for capital, it has been dominated by foreign interests which alone could supply the investment capital. Consequently this sector of the economy, during the colonial period at least, made little contribution to the Indonesian economy (Boeke, 1942; Cooley, 1968; Paauw, 1967).

This pronounced dualism in the Indonesian economy has had important

consequences, which are still operative despite the fact that since the late 1950's government intervention in the economy has sought to mitigate the effects of alien control. In the first place there developed steadily widening disparities in per capita income in the two sectors. The figures for 1930 in Table B1 in Appendix B reveal clearly the degree to which Indonesians were excluded from the modern, capital-intensive part of the economy and from receiving a share in profits. These disparities in income certainly continued at least through 1958.

In the second place, technological dualism, involving as it does foreign control over much of the modern sector, has "hampered the Westernization of the traditional sector by reducing possibilities for the transmission to it of attitudes which might have induced capital formation, a lowered birth rate, and other fundamental changes related to growth" (Paauw, 1967, p. 172). The population dynamics have tended to perpetuate this technological dualism and stagnation in the labor-intensive sector by eating up capital formation.

Recognizing the diversities in the political sphere, Indonesia has taken Bhinneka Tunggal Ika or Unity in Diversity as her motto. Taking the form of a unitary state, Indonesia has based herself on the 1945 Constitution and Panca Sila or Five Pillars, the philosophical basis of the state, which is composed of five inseparable and mutually-qualifying principles: "Belief in the One Supreme God, Just and Civilized Humanity, Unity of Indonesia, Democracy, which is guided by the inner wisdom in the unanimity arising out of deliberations amongst representatives, and

Social Justice for the whole People of Indonesia" (Embassy of Indonesia, 1967, p. 30). This political arrangement demands a heavy concentration of power in the hands of the central government. Policies are centrally formulated and channelled down through the governmental bureaucratic structure of the province, regency, and subdistrict levels. At the very end, the implementation of policies is performed at the village level. In the section that follows a general overview of the village setting is also presented.

Village setting

Taking into account the diverse backgrounds in the general setting of Indonesia, one comes to wonder whether generalizations concerning the villages of Indonesia would risk obscuring rather than clarifying the setting. Therefore, the present task limits itself to a brief description of the village setting in Central Java where the present study took place.

A village has been defined in various ways. Selosoemardjan (1962, p. 87) defines a village as "a territorial cluster of five or six hamlets (each hamlet includes 60 to 90 families) administered by an elected village headman, with his assistants, who function as the head of one or sometimes two hamlets". The Directorate General of Village Community Development of the Ministry of Home Affairs (1974, p. 11) defines a village as "the lowest governmental administrative unit". It is interesting to note that these definitions reflect the two views concerning what a village should be; the one sees a village

as a small republic having all the autonomy it needs, whereas the other sees a village as the ultimate hands of central government to reach the lower masses.

Perhaps a more balanced and comprehensive definition used by this study is offered by Koentjaraningrat. For villages in Java where the process of becoming a social unit has taken place over a much longer period, the village is "at the same time a residential unit, a unit of agricultural production, and an adat[1] unit, as well as an administrative unit" (1967b, p. 390).

As a social unit, the village can be considered as a fairly recent phenomena. The reports made by the British in the early nineteenth century indicated the nonexistence of any village. People were strangers one to another, there was no tie at all either by blood or marriage among the people (Ong Hok Ham, 1977). Breman (1979, p. 18), based on his research on colonial literature, wrote:

> . . . in my opinion, "the desa[2] system did not antedate the colonial state but is rather the product of it; a result of a process of localization and horizontalization that manifested itself during the course of the nineteenth century.

He further stated:

> The variety of types which unmistakably appear, revert, in my opinion, the cultural patterns which, at some early stage, crystalized in separate parts of Java, but which were accentuated as well by differently paced autonomous processes (for example, the tempo and effects of islamization) and last but not least, by a policy of exploitation that varied regionally within the framework of the colonial state for the greater part of the last century (p. 42)

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[1] Adat generally means the whole body of tradition and customary laws which differs from one area to another.

[2] Desa is the Indonesian term for village.

Although one would expect to find differences among villages in Central Java, several common characteristics are observed. As a residential unit, a village shows a cluster of households living in several heavily wooded hamlets, surrounded by wide fields of rice, sugar cane or other crops. As a unit of agricultural production, villages gear themselves toward production of rice as the main staple food, and secondary crops such as soyabean, maize, cassava, sweet potato, groundnut, and small green pea.

An eminent common characteristic of the village as an adat unit is the gotong-royong, a concept which refers to a complex of institutions and has three broad categories of meanings. The first, gotong-royong refers to the system of reciprocal or mutual aid in the agricultural activities and in other spheres of village community life (Koentjaraningrat, 1967b). In Central Java in particular, Koentjaraningrat notices differences in attitude and degree of spontaneity concerning the various types of mutual aid. When an emergency, accident, or death occurs, neighbors and other members of the village community will gather spontaneously to render aid without much expectation for its return, e.g. tetulung layat (aid in the case of death). On the other hand, in agricultural activities people keep careful account of the amount of aid they render, e.g. sambat-sinambat (mutual asking for help) (Koentjaraningrat, 1961; 1967a).

The second category of meaning of gotong royong is rendering aid to the community for the common benefit. This kind of gotong royong is

generally called kerja-bakti or dharma-bakti. Many community projects such as constructing irrigation ditches, roads, community building, sacred houses etc. were carried out using kerja-bakti (Lembaga Penelitian Ilmu-ilmu Sosial, 1976; Koentjaraningrat, 1967b).

Finally, gotong-royong means community spirit too, that is, a sociocultural ethos that underlies the value system, mores, and folkways of a society. To sacrifice for the common benefit seems to be valued highly, whereas individualism seems to be regarded with disapproval. The rights of individuals are not greatly overemphasized, and the spirit of cooperation forms the basis for social interaction (Koentjaraningrat, 1967b). In actuality this final type of meaning of gotong-royong is reflected through the village assembly meetings. Jay (1969, p. 381) described the decision-making process of the village assembly in the following manner:

> The assembly selects by consensus a chairman (usually the senior official of the administrative unit), a recording secretary (usually the local secretary), and a herald. The role of the chairman is that of peacemaker and expediter who keeps things moving toward a decision. The regular process for decision making in all corporate contexts (other than for the election of rural officials) is by consensus. Such a decision is arrived at by sounding out the size of the opposition. When proper etiquette prevails and the speakers stick to the subject at issue, opposition to any proposal before the assembly is expressed in tactful, often elliptical phrasing, with appeal to high sentiments, sometimes supported with logic drawn from Javanese mysticism or from the mystique of modern Indonesian nationalism. Yet out of this foggy dew of opinion the chairman and most of the assembly gain a fine sense for the size, intensity, and relative influence of the opposition.

Obviously, there is no voting and sufficient time and wisdom are required to carry out the process of decision-making. Harmony within the

community is the underlying guiding principle to which all individual rights are measured.

As an administrative unit, the village began its roots during the colonial state (Breman, 1979; Selosoemardjan, 1962). The unit is characterized by its single leadership performed by the village head (lurah or kepaladesa). The village head assisted by several officials comprise the Village Government Organization. In the past a village council of elders helped village government functioning, particularly in dealing with adat matters. Later on, with the increased intensity of village development, the village council took a new form and task. In 1972, instead of having a village council, a village development planning board was formed by a decree of the Governor of Central Java province[1]. It turned out, however, that the village development planning board was not able to undertake its task, partly because of the lack in expertise and partly because the board did not necessarily represent the various relevant social factions within the village community. Therefore, in 1975 by a decree of the Governor of Central Java province[2] all the functions, tasks and activities of the board was handed over to the Village Social Institute (Lembaga Sosial Desa).[3]

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[1]Cf. The Decree of the Governor of Central Java province No: Dsa. $\frac{G.324/1972}{15/206/8}$ on October 24, 1972.

[2]Cf. The Decree of the Governor of Central Java province No. $\frac{Pem.565/75}{208/3}$ on June 23, 1975.

[3]As an organization the village social institute is not a new phenomenon. It has long been in existence under the Ministry of Social Affairs. In 1972, the village social institute was shifted to be under the Ministry of Home Affairs. Since then the village social institute has undergone changes both in terms of its organization and function.

As an organization, the village social institute is local; it is an organization for all development efforts and activities of the village community which helps government, particularly village government in developing the village "from traditional to transitional, and finally toward the self-propelled village state" (Departemen Dalam Negeri Republik Indonesia, 1977a, p. 39). Its activities fall into three categories: social, economic, cultural and spiritual. Besides the connection of the village social institute to the village government through the three categories of activities, the village head also formally presides over the village social institute as the general chairperson[1].

Taking into account the great variety in formal structure of village government organization and the rapid changes that are taking place at the village level, on Chart 1 an attempt was made to present a simplified version of the village government organizational structure which will give insights into the selection of the unit of analysis for the present undertaking.

Obviously, more can be added to the description of general and village settings. However, the overview adequately provides some bases for looking further into issues of rural development in Central Java which leads toward the formulation of the research problems and objectives for this dissertation.

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[1]Cf. The telex of Minister of Home Affairs No. PMD.068/A/I/5, March 20, 1973 and the letter of Minister of Home Affairs No. DD.133/PMD/IV-2/73, April 5, 1973.

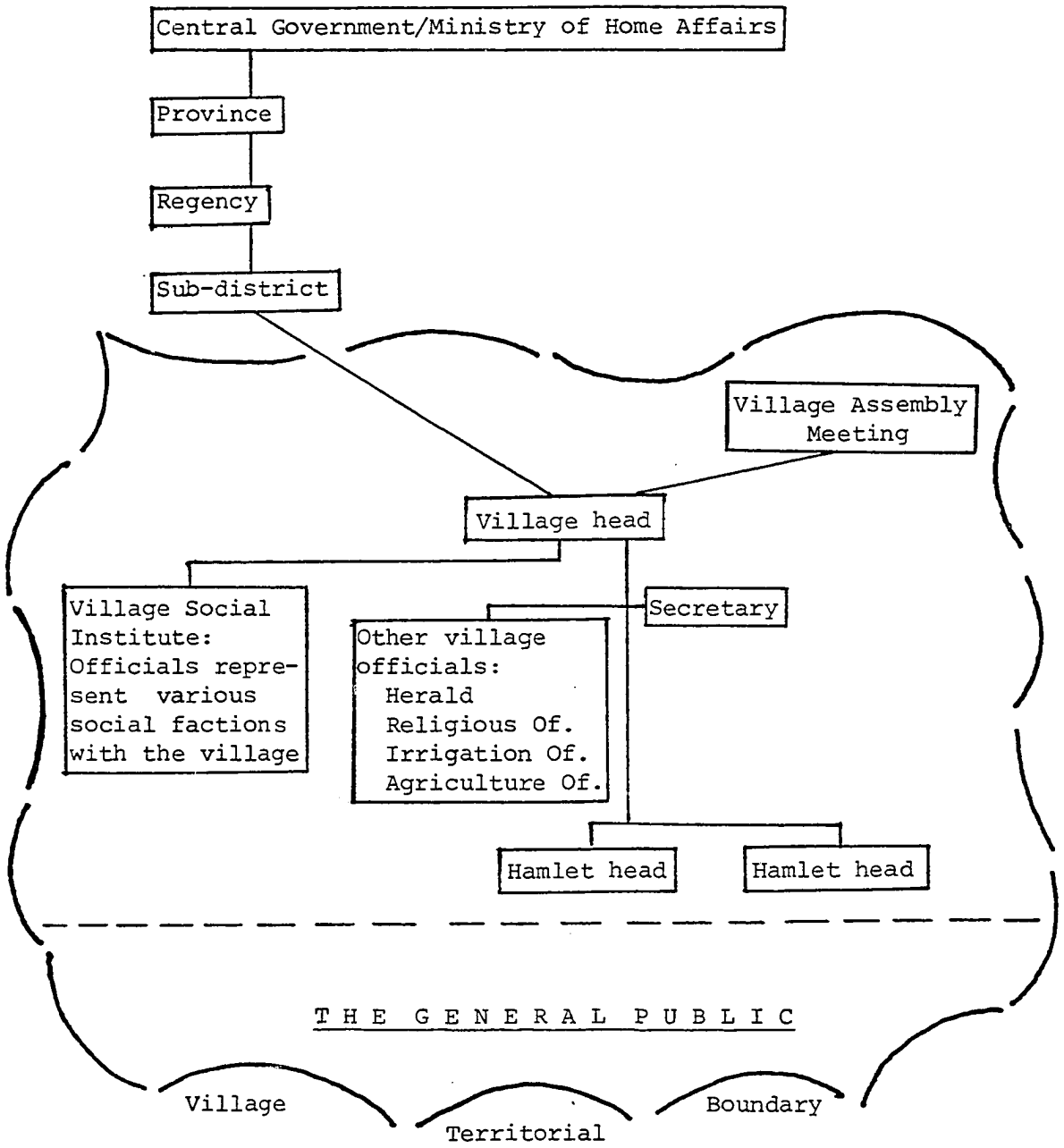

Chart 1. A simplified village government organizational structure and its relation to supra-village bureaucratic structure

Village links to the national government bureaucratic structure

In conclusion, a few words should be said about the relationship between village government organizational structure and supra-village governmental bureaucratic structure. It has been a tradition of Dutch rule to abstain from interference in village affairs except in so far as the interests of the central government required. Therefore, in the past the headman had a double function. On the one hand he was the organ of social will in respect to internal economy and on the other hand he was the instrument of authority in matters in which the government was concerned (Naval Intelligence Division, 1944, vol. 2). After independence, the 1948 local government law was passed which proposed to turn the province, the regency, and the village into self-governing units with wide powers of autonomy over their own affairs. Since 1948 several changes have been made. However, no village was granted complete self-government (Palmier, 1960).

As it is now, the regional government in Indonesia, the chief responsibility of the Ministry of Home Affairs, consists of three administrative levels--province, regency, and sub-district--each of which is headed by an appointed member of the territorial civil service (pamong praja). At each level pamong praja officials possess direct administrative authority over their own staffs and over officials at the level below them, and are also responsible for coordination of the various local agencies of other ministries. Subdistrict officers, the lowest link in the central administrative chain, provide liason with locally-elected village and hamlet officials. Although, strictly

speaking, village government officials are elected officials and they are not civil servants, in actuality they are treated as the extension of hands of the Ministry of Home Affairs to reach the village masses (Liddle, 1973).

The section that follows deals with problems of development, particularly rural development, in Indonesia.

The Quest for Development

Indonesia was not able to engage in development activities in the period immediately after its independence. Physical and political struggles dominated that particular period of time, especially during 1945 to 1950. Nevertheless, in 1951 the Ministry of Trade and Industry introduced for the first time the Urgency Economic Plan (Rencana Urgensi Perekonomian). The plan has been described as a highly nationalistic attempt to diminish the nation's dependence on foreign trade by developing small, nasional (i.e., indigenous) industry to produce import substitutes by means of capital assistance and restriction of certain markets to indigenous sellers. It reveals the predisposition of Indonesia's political elite toward government initiative in all areas of development. The Urgency Economic Plan, however, failed to bring significant changes due to political instability.

In 1956 the National Planning Bureau presented the Five-Year Development Plan for 1956-1961. Shortly after the plan was launched, the security situation deteriorated, culminating in the rebellion of 1958. The ousting of virtually all Dutch enterprises in late 1957

caused serious disruption to production, investment and distribution. By early 1959, the plan was virtually abandoned although a number of already initiated projects were continued (Higgins, 1957).

In August 1959, President Sukarno named a seventy member National Planning Council (Dewan Perancang Nasional), urging it to produce as quickly as possible a plan for Indonesia's social, cultural and economic development. Approved by the Provisional People's Consultative Assembly in December 1960, the Eight-year Overall Development Plan was officially inaugurated by the President on January 1, 1961. The plan also failed to bring results mainly because of political instability. Inflation soared up at a rate of 650 per cent and the political struggles ended with an aborted coup by the communist party.

On the basis of Decree No. XXIII of the Provisional People's Consultative Assembly (Ketetapan MPRS No. XXIII)[1], the government of the New Order headed by President Suharto immediately took steps to examine the economic and political stabilization programs and to formulate the first of a series of five-year long term development plans. The first task successfully brought enough political stability and held inflation down to 85 per cent by 1968. The second task took the form of the first Five-year Development Plan (Rencana Pembangunan Lima Tahun)[2]

[1]The Decree authorizes the government to curb inflation, to provide adequate food and clothing, to rehabilitate economic infrastructures and to increase exports.

[2]For brevity Pelita which stands for Pembangunan Lima Tahun (Five Year Development) is used throughout the text. Roman numerals are used to refer to a particular plan in the series.

which was officially commenced in 1969. The thrust of Pelita I is basically on the economic development focusing on agricultural, mining and industry, and infrastructure sectors (Departemen Penerangan Republik Indonesia, 1970, Buku I).

The Pelita II (1974/75 - 1978/79) has objectives similar to the Pelita I (1969/70 - 1973/74), that is, "to provide adequate food and clothing; to improve infrastructures, to provide public housing, to expand employment opportunities, and to improve spiritual well being of the people" (Departemen Penerangan Republik Indonesia, 1970, Buku I, p. 13). Special attention, however, was given to unsolved problem areas during Pelita I, such as, employment, distribution of development benefits, market structure, growth rate of regional economy, transmigration, people's participation in development processes, and the capability of governmental bureaucratic apparatus (Pemerintah Republik Indonesia, 1974, Buku I).

At this point one could sense already that rural development had a place in both Pelitas. Nevertheless, the question is whether rural development obtained equal emphasis in both Pelitas. This question is examined in the section below.

Rural development

Slightly over 80 per cent of the total population of Indonesia lives in 58,164 villages[1] of three different types: traditional (swadaya),

[1]This figure does not include 1,721 pre-villages and the villages in East Timor province.

transitional (swakarya), and self-propelled (swasembada)[1]. The traditional type of village has been characterized by the prevalence of its customs and tradition, its subsistence economic condition and low productivity, and a per capita income of below Rp 10,000.[2] Moreover, less than 30 per cent of the village population has completed their elementary education; village government administration and other village institutions are present but not fully functioning. Limited infrastructures also hamper communication with the external world.

The transitional village type is characterized by the increasing influence of the external world, particularly through the adoption of new agricultural technology, slightly higher agricultural productivity and a per capita income of about Rp 12,000. About 30 to 60 percent of the village population has finished their elementary education and village government administration and other institutions are functioning. Communications with the outside village world are better due to adequate infrastructures.

The self-propelled village type is characterized by the relatively strong influence of the modernization process; by extensive application of new agricultural technology; by higher productivity, and by the per capita income of Rp 17,500. More than 60 per cent of the village population has completed their elementary education. Village government

[1]The village typology was introduced by the Ministry of Home Affairs based on a study of 2,000 sample-sized villages in 1971.

[2]Since November 15, 1978, the Indonesia currency, Rupiah (Rp) has been kept floating against the US dollar. The exchange rate for $1.00 varies around Rp 600.

and other institutions are functioning well, and an adequate infrastructure facilitates better communication with towns and cities (Achmadi, 1974).

Sajogyo (1977) describes an additional new dimension of the village condition. Using 240 kilograms of rice per person per year as the poverty-line for the rural area, he found that 32.6 per cent of the village population in Indonesia as a whole and 35.0 per cent in Java are poor. He further indicated that those in the rural area of Java who live below the poverty-line obtain approximately 1,600 calories per person per day. As a comparison a farmer who digs up the ground needs 3,500 calories per day. In addition it was also found that only 35 grams of protein are consumed daily (Tojib Hadiwidjaja, 1972).

Needless to say, regardless of the type, village conditions call for massive rural development efforts. The Pelita I was primarily designed to increase food production and to complete large-scale infrastructure. Except for the introduction of new rice varieties and their attending inputs, there is very little in the Pelita I that concerned rural development. Most Central Government programs which extend to the village level were poorly financed and encountered problems in overlapping, coordination, lack of skilled manpower, and poor communication.

Recognizing all the problems, the Pelita II provided the following policy statement[1] with regard to rural development (Pemerintah Republik

[1]The English version of the policy statement is the author's translation. The symbol (*) is employed throughout the text to refer to the author's translation from the Indonesian texts.

Indonesia, 1974, Buku III, pp. 82-83):

a. to provide and expand employment opportunities in agriculture, small industry and handicraft.

b. to carry out resettlement.

c. to develop backward areas, critical land and coastal villages.

d. to expand and improve rural infrastructures.

e. to increase knowledge and skills.

f. to increase communication to rural areas through the various mass-media, particularly information related to production and social wellbeing.

g. to expand rural health facilities by establishing and providing health care centers, clean water and sanitation facilities.

h. to improve the village cooperative unit as a means leading to economic development.

i. to increase people's participation through Village Social Institute in the areas of social development.

j. to improve village government organizational performance.

As has been well-recognized, in many countries in Asia, Africa or Latin America, state intervention in initiating, substaining, and implementing the national, especially rural development, is predominant (Portes, 1976). Paauw (1967, p. 216) stated:

> Government developmental initiative assumed a distinctive flavor from the Urgency Economic Plan, a flavor that dominated development policy until recently. The plan visualized Indonesia's national leadership as a group of men keenly attuned to the larger questions of Indonesia's economic growth; this group would be responsible for introducing critical innovations to trigger a process of spontaneous growth.

In both Pelitas the key role of government at the supra-village levels

was repeatedly emphasized. Whether this was also true at the village level will be discussed in the section that follows.

Toward the Formulation of Research Problems

The importance of government in rural development appears to be well-stated in both Pelitas (Departemen Penerangan Republik Indonesia, 1970, Buku I, p. 82; 1970, Buku III, p. 82):

> *Rural development is carried out in harmonious balance of obligations between the government and the people. The government provides guidance, direction, control, and technical aid as well as other forms of help to increase the capability of the people to help themselves toward self-propelled development.

Although the policy statement does not explicitly specify the role of village government, it does, however, clearly indicate the government intervention at the village level. At this point it becomes very important how one views the village government in relation to the overall bureaucratic structure of the government. Taking the view of the Ministry of Home Affairs it appears that village government is mainly the hands of central government extending to reach the village public at large. The implication is that what supposes to be a "harmonious balance of obligation" between the government, including village government, and the people gives way toward the submission of a greater part of the people's role in the village development process into the hands of village government. As a consequence, village government turns out to be the key organization acting as an instigated change

agency[1] at the village level.

One of the questions worth asking is whether village government as an organization gets this importance as reflected in the policy statement of Pelita. In actuality, the emphasis has shifted toward the village head. Perhaps, the clearest indication of such a shift is found in a statement by the Director General of Rural Development of the Ministry of Home Affairs as follows:

> *In his position as the head of village development, the village headman assumes full responsibilities for successful implementation of development activities in the village. Having centralized authority, the village headman functions as governmental and community development administrator; he has decisive roles in the success of village development process due to his direct contacts with the villagers and his familiarity of their problems (Achmadi, 1974, p. 28).

Other publications of the Ministry of Home Affairs go even further in detailing the roles of village head such as:

> *. . . to preside over the village social institute; to be responsible in compiling and reporting development related data to be used for planning purposes; to be the only link for obtaining village subsidy and to get people implementing development projects; to generate people's participation and to undertake other activities related to development (Departemen Dalam Negeri Republik Indonesia, 1977b, p. 30).

If one compares the place given to the village head during the colonial period and the one during the period of Pelitas, it is interesting to discover the similarity in the centrality of the village head as a broker[2] between the village as an administrative unit and supra-village

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[1]Following Beal (1976, p. 8), instigated change refers to "a purpose pattern of choice-making, goal directed, collective behavior".

[2]The term broker refers to "the one who acts as an agent, one who is a go-between for two or more parties" (Beal, 1976, p. 21).

bureaucratic structure.

From the above discussion emerges two sets of conflicting development policies; the first is people's participation versus centralization of authority in the village development process, and the second is village government organizational effectiveness versus the effective performance of an individual leader in the village development process. People's participation calls for a more dispersed and decentralized authority which, in fact, is in conflict with the centralized authority given to the village head. The second conflicting policy stems from the fact that as the number of village development programs increase, it requires more organizations to do the jobs. The creation of Village Cooperative Unit (Koperasi Unit Desa/KUD), Corporate Body of Village Cooperative (Badan Usaha Unit Desa), Village Social Institute (Lembaga Sosial Desa) and other organizations at the village level are clear indicatives of the growing importance of organizations as a means for carrying out the various development programs and calls for multiple leaders. In actuality the village head is overburdened, as succinctly stated by the following report (Lembaga Penelitian Ilmu-ilmu Sosial, 1976, 32):

> *In the village, the headman holds single leadership. He is assisted by other officials who usually have limited knowledge and skills. . . . With the skills that are available, village-head had to handle the various projects designed by experts of different fields at the national, province, or regency level. The villagehead, then, has to involve himself and be knowledgable in almost every field, from building construction to nutrition improvement, from tax collection to extension. At the sub-district level all development activities are undertaken by at least twenty-five officials.

The above discussion leads to the next question of whether research should center on the village head as an individual leader or on village government as an organization. The position taken here is that one should not be blinded by the immense authority of the village head and thereby limit oneself in researching the village head in relation to village development. Instead, this study should focus more on village government organization.

There are two reasons for taking this position. The first, compared to other organization at the village level, if there is any, village government organization is, perhaps, one of the earliest. This, and the fact that village government organization has been given responsibilities (even though in many cases the village head is the key figure), to oversee village development programs, calls for attention to further examination of the behavior and effectiveness of village government organization. Without better insights one can hardly fulfill the call "to improve the structure and effectiveness of village government" (Departemen Penerangan R.I., 1970, Buku I, p. 83). Ruttan (1977, p. 216) warns:

> . . . unless social science research can generate new knowledge leading to viable institutional innovation and more effective institutional performance, the potential productivity growth made possible by scientific and technical innovation will be underutilized.

The second reason stems from the fact that as the number, scope and intensity of rural development programs increase, the use of organization as a means to carry out the various programs is inevitable. In this regard Ruttan (1975, p. 16) suggests:

> . . . effective implementation of rural development programs is, to a substantial degree, dependent on the development of the institutional capacity to mobilize the limited political and economic resources available to the disadvantaged in rural communities. In societies where rural administration is organized according to economic policies which are primarily directed toward the extraction of a surplus from rural areas, the political and economic conditions necessary for rural development will rarely be met.

The data in Table B2 in Appendix B reveal that in 1971/72 only 1.4 percent of villages were in the self-propelled stage. Achmadi (1974) indicates that the goal was to transform the rest of the villages into the self-propelled stage within a twenty-five to thirty-year period and to enhance further development of all the villages. To attain the goal, as many as 11,400 villages have to reach the self-propelled stage within each Pelita or as many as 2,280 villages (4 percent) per year. In actuality, only one percent was achieved at the end of the first Pelita. If the village government organization has been so much in charge for the development of these village communities, then there is a need to examine the organizational effectiveness of the village government organization. Therefore, the problem is to unearth the determinants of the variations or changes in the organizational effectiveness of the village change agency. This study attempts to examine this problem.

There are two brief notes that must be added immediately. First, this study does not attempt to provide and to examine an exhaustive list of determinants of organizational effectiveness. It focuses upon selected determinants. Second, instead of merely focusing on village government organization, this study takes into account the assisting role played by the village social institute in the rural development

process. Therefore, the term Village Change Agency (VICHA)[1] is adopted to include both Village Government Organization and Village Social Institute. Change agency refers to "an organization seeking to bring about social change" (Kotler quoted in Beal, 1976, p. 13).

In examining the problem, this study is guided by certain objectives. The section that follows explicitly spells out those objectives.

Objectives

There are two objectives pursued in this study. First, the study attempts to partially meet the call to do research on VICHA. The Pelita II clearly states this applied objective as follows (Pemerintah Republik Indonesia, 1974, Buku III, p. 380):

> *It is necessary to undertake research on village government which has to carry on all the changes and progressions of development outcomes in order to keep village government in pace with the achievements and demands of the development processes.

Second, the study aims also at a scientific objective. It has long been felt that an integrated theoretical and empirical approach utilizing rigorous analytical techniques be employed to refine the existing village studies in Indonesia. Koentjaraningrat (1967b, p. 386) expressed his concern on this matter as follows:

> (T)he articles . . . are primarily intended as sources to obtain impressions on social phenomena in village communities in Indonesia today. A more intensive knowledge of these phenomena, in specific sociocultural settings, will enable us to formulate, with greater accuracy, problems and hypotheses

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[1] The abbreviation VICHA is used throughout the text.

> on the social system of village Indonesia in general. The characteristics of the Indonesian village or desa . . . must be considered as only tentative knowledge, the validity of which has to be tested by more sophisticated quantitative methods.

Not many studies have been done in the area of organizational effectiveness of the VICHA, let alone the use of a combined theoretical and quantitative approach. This study, therefore, provides one of the first steps toward the sociological study on organizational effectiveness in Indonesia.

CHAPTER II. THEORETICAL ORIENTATION

In studying organization in nonwestern societies Presthus (1972, p. 51) cautions researchers by stating:

> . . . the western bureaucratic model with its structural and behavioral elements of efficiency, rationality, and control rests upon certain normative assumptions about time, man, and motivation. . . . Where social values do not assign a high priority to objectivity, productivity, and economic gain, the manifest structure of bureaucracy is of little relevance as a guide either to its performance or to its 'real' goals.

This present study has a two-fold dimension which make Presthus' warning highly relevant. It is not only that this study is carried out in a nonwestern society, its problem area, organizational effectivenss, is still a frontier to researchers in Indonesia and other developing countries in which very little organizational research if any, has been done. Therefore, before further examining the organizational effectiveness of VICHA, the first task of this chapter is to lay out the theoretical foundation for the study. Having done that, the chapter proceeds to examine the propositions and to construct a model of determinants of organizational effectiveness of VICHA.

Theoretical Foundation

In this modern world, organization dominates most of the spheres of one's daily life. The proliferation of books and journal articles using various perspectives and focuses on the various aspects of organization is one of the indications of the important role of organizations. In the recent past years, there has been a growth in research as well as

in the concern among sociologists about the area of organizational effectiveness. The availability of refined statistical techniques for analysis and research funds are only two of the reasons for researching organizational effectiveness. The growing concern over this matter, as stated by Scott (1977, p. 74) is that "the many parties associated with the organization assess effectiveness by means of different and potentially conflicting criteria".

The interest in organizational effectiveness covers six critical issues: nature of the organization, definition of organizational effectiveness, domain of effectiveness, constituencies, determinants of organizational effectiveness and, finally, the problem of research strategies (Goodman and Pennings, 1977). The present study limits itself only to the issue of determinants of organizational effectiveness.

Determinants and criteria of effectiveness

In dealing with the determinants issue of organizational effectiveness one needs to distinguish it from the issue of criteria of organizational effectiveness. The two issues are closely related and in the past the distinction between the two has been blurred, resulting in some unnecessary debate. Kahn (1977) suggests that to avoid such confusion, distinction must be clearly made between variables that define organizational effectiveness and those that predict it. The issue of determinants of organizational effectiveness centers on relevant variables that predict organizational effectiveness and provide a frame-

work for defining it. Campbell (1977, pp. 18-19) states:

> Strictly speaking, it is not possible for anyone concerned with organizational effectiveness to avoid using it as a construct or to avoid operating via some kind of theory. Without a theory of some sort, even if it has never been made public, it is not possible to say that one organization is more effective than another, or to say that variable X is a measure of organizational effectiveness and variable Y is not, or to plan ways to 'change' an organization.

Therefore, it is incumbent on all those concerned to make their theoretical framework of determinants of organizational effectiveness as explicit as possible. This task is carried out in the section that follows.

Perspective on organizational effectiveness determinants

The explicit specification of some relevant determinants of organizational effectiveness depends on the perspective employed with regard to the nature of organization. Following Haas and Drabek (1973), the eight organizational perspectives are rational, classical, human relation, natural system, conflict, exchange, technological, and open system. Each perspective views organization differently.

By and large, research on organizational effectiveness (as in organization theory generally) has been influenced by two models of organizational analysis which have emerged over the years. One of these, known variously as the classical model, machine theory, or rational model, conceives of the organization as a rational instrument or machine. The other, known as the organismic or social system model looks upon the organization as a social system (Ghorpade, 1970).

The rational or classical perspective views organization as effective

in terms of its capabilities for the attainment of specified goals. Therefore, emphasis is on variables such as productivity, i.e., number of units produced in a given time period, or efficiency, i.e., number of output units produced for a given number of input units (Scott, 1977).

The use of goals as criteria of effectiveness has several advantages in studying organizational effectiveness. First, this approach directs attention to the purposive, rational basis underlying these organizations. Second, this method is considered to be "value free". Third, there is overt simplicity offered by this approach (Ghorpade, 1970).

Nevertheless, a major danger of this approach is the neglect of a balanced evaluation of the organization from alternative frames of reference, i.e., the constituencies. In addition, focusing upon the manifest, the formal, and the stated goal generally results in the neglect of the hidden, the implicit and the latent potential of organizational phenomena. Furthermore, the goal approach to organizational effectiveness is impractical when one is confronted with organizations which have multiple goals, making incompatible demands upon their resources (Ghorpade, 1970).

Because of problems such as those noted above, the goal approach to organizational effectiveness ordinarily yields only limited results. This is largely because of the failure of its underlying model to take note of the essentially open, multifunctional nature of organizations.

As an analytical point of departure, social system perspective views organization as a ". . . functionally differentiated subsystem of a

larger social system" (Parsons, 1960, p. 19). There are two variants of social system perspective, that is, the natural system and the open system. The natural system perspective views organizations as effective not only in terms of their capability for achieving specified goals but also simultaneously their capacity for survival (Scott, 1977).

The open system variant views organizations as highly interdependent with their environments and engaged in system-elaborating as well as system-maintaining activities (Buckley, 1967). The approach is oriented much more to the study of processes than structures--examination of input, throughput, and output; processes of materials, information, and energy being central to the analysis. Variables such as adaptability or flexibility, and maximization of bargaining positions as reflected in the organization's ability to exploit its environment in the acquisition of scarce and valued resources are some of the relevant variables for organizational effectiveness (Georgopoulos and Tannenbaum, 1957; Yuchtman and Seashore, 1967).

The social systems approach to organizational analysis provides several advantages. First, this approach enables a balanced evaluation of the organization from alternative frames of reference. In addition, it enables a global assessment of the organization's functioning and health (Ghorpade, 1970).

One of the shortcomings of most of the perspectives is that they view organizational effectiveness in a very limited fashion. In the attempt to bring together the various approaches of effectiveness into

one analytical framework, Molnar and Rogers (1976) empirically tested the convergence between goal and system resource approaches. Their findings reveal some consistency but no convergence between the two approaches.

In studying a noneconomic organization, Mulford and associates (1976) developed multiple criteria of organizational effectiveness and show the relationship between the six measures they employ and ten prominent perspectives on effectiveness. Mulford and associates (1976, p. 128) state:

> It is interesting to note the high degree of similarity among the various multidimensional perspectives that have been developed since Parsons' initial application of the system perspective to organizations. All but Yuchtman and Seashore include a dimension that relates closely to the accomplishment of formal goals. All but Stogdill and Azumi and Hage emphasize the acquisition of resources.

The above insights seem to lead Mulford and colleagues (1977) to develop a more comprehensive criteria. They state:

> It is our belief that effectiveness is reflected in the outcomes of various organizational activities. Effectiveness in other words, is not a single outcome or state of affairs (p. 21).

The multiple indicator approach, as Mulford and associates call it, cross classifies "the kind of evidence", i.e., the formal goals (effectiveness and efficiency) and comparative and evaluative criteria with "the focus of the evaluation", i.e. internal or external, and arrives at four sets of effectiveness criteria. These four are: organizational productivity, organizational health, inputs to program development, and public support. Added to these four criteria is the interorganizational

relations dimension. Perhaps, the most important contributions of this approach are not only that it draws its sources from most organizational perspectives discussed before and utilizes multiple criteria of effectiveness, but the approach also takes into account the constituencies which are often neglected. Goodman and Pennings (1977, p. 5) provide a support to the importance of this type of approach by stating:

> Once the properties or criteria of effectiveness have been identified, a problem still exists to whose perspective should dominate in the use of these criteria. Is it the perspective of the owners, employees, managers, or public at large that determines the type of criteria and the level of effectiveness desired? Should it be the 'official' goals, 'operative' goals, or those derived by the researcher that define the effectiveness?

By looking at organization as an open system, the multiple indicator approach includes some relevant individual, group, organizational, and environmental variables in the model. The question is whether the multiple indicator approach provides some basis for the present study.

The approach discussed so far has been developed to deal primarily with the effectiveness problem of complex organization in industrialized society. On the other hand, the focus of this present study is small and local-community-based organization in a nonindustrialized society. Unfortunately, there is very little literature that focuses directly upon effectiness of a small locally based organization. Thereby, it is necessary to see whether the approach discussed earlier is also applicable in studying the effectiveness problem of a small locally based organization.

If one compares the complex organization to the small locally based

organization, several similarities will be apparent. The first similarity is that both types of organization exist in environments and are in continuous interplay with their respective environments. What constitutes the relevant environments and what type of texture the relevant environments may have, vary from organization to organization. How the environments affect the organization and vice versa also vary from organization to organization.

The second similarity is that both types of organization are semi-open systems. Each type of organization has boundaries, that is, the barrier condition between the organization and its environment. These barrier conditions make for the degree of permeability in organizational boundaries (Katz and Kahn, 1978).

The third similarity is that both types of organization have the outputs to offer to their respective environments. Obviously, the kinds and forms of outputs vary from organization to organization. However, the degree to which their outputs reach their environments depends on the power organizations have over their environments.

The fourth similarity is that both types of organization need inputs from their respective environments in order to produce outputs. Chin (1976) distinguishes five content aspects of the environment that are relevant to planned change. These are: 1) the means in the environment for transforming the environment; 2) the patterns that structure power and authority environment relations to the system; 3) the resources which serve functions of the system; 4) the available information in the environment for the system; 5) the structures representing potential

feedback loops to the system (1976, p. 108).

The fifth similarity is that both types of organization have a structure and show several processes which transform the inputs into outputs. Both types of organization show some division of labor among the participating members within the organization, the use of certain types of technology, and some coordinative efforts achieved through communication and leadership.

More similarities between the two types of organization can be indicated. However, the above discussions seem to be sufficient to show that conceptually, the multiple indicator approach does provide a general framework to study effectiveness problem of small locally based organization in nonindustrialized society. Certainly some adjustments have to be made, but this is more in terms of the conceptual elements of the general framework rather than the general framework itself.

Presthus suggests that in studying organizational behavior in non-western culture of underdeveloped countries one must begin "at the culture wide level since this illuminates the interrelationships between the benchmark value of a society and its institutions" (1959, p. 103). This kind of analysis, Presthus argues, focuses upon the interplay among three critical elements: the whole culture of a society, a given organizational situation and the modal personality type of the society. These critical variables are interdependent and changing and result in a very complicated analytical situation. In this context an organization may be viewed as a miniature society in which traditional social controls

over the individual appear in sharp focus. As a social microcosm organizations are instruments for sharpening and validating the main values of the larger society (Presthus, 1958, 1959).

Sells (1964) offers a taxonomy of organization similar to Presthus', that is, an interplay between three major categories of variables: 1) characteristics of physical and social environment, 2) organizational characteristics, and 3) characteristics of individuals participating. Others have voiced the need for a contingency theory of organizations to deal with psychological characteristics of people participating as well as characteristics of organization and environments in order to capture the true complexity of organizations (Lorsch and Morse, 1974; Pennings and Goodman, 1977). Others attempt to use the theoretical framework in undertaking empirical research (Hage and Aiken, 1972).

Having discussed the various theoretical frameworks, the task is to lay out the framework for the study of this dissertation. Following the one provided by Presthus and others, and Mulford and associates in a limited fashion, the present study confines itself to the internal focus of evaluation and in so doing employs some relevant conceptual elements derived from the individual member, organization and, environment.

As an organization, VICHA does not exist in a vacuum but in an environment. The environment of an organization consists of individuals, groups, and organizations that provide resources for organizational input and that are recipients of organizational output. Organizations depend on these actors for both resources and information; this dependence has important implication for effectiveness.

Actors in the environment are determinants of effectiveness when they have some control over the focal organization's input acquisition or its output disposal. Organizations either adapt themselves to an existing pool of actors, in turn gaining some control over them, or they select an environment that is congruent with their goals, technology, and structure. Levine and White (1975), for instance, conceptualize the organization-environment interaction in terms of exchange system. They argue that the interdependence of the parts of the exchange system is contingent upon three related factors: 1) the accessibility of each organization to necessary elements from sources outside the system, 2) the objective of the organization and particular functions to which it allocates the elements it controls, and 3) the degree to which domain consensus exists among the various organizations (p. 345). Yuchtman and Seashore (1967) argue that the organization's success over a period of time in the competition for resources is regarded as an expression of its overall effectiveness. Since the resources are of various kinds, and the competitive relationships are multiple, and since there is interchangeability among classes of resources the assessment of organizational effectiveness must be in terms of an open-ended multidimensional set of criteria.

From the output disposal dimension, the conceptualization of effectiveness has been associated with the organization's ability to achieve its goals (Scott, 1977; Etzioni, 1975). Perrow (1972a) even makes it clearer by distinguishing five types or levels of goals. These are:

1) social goal that deals with large classes of organizations that fulfill societal need, 2) output goals that deals with the types of output defined in terms of consumer function, 3) system goal that emphasizes upon growth, stability, profits, or upon modes of functioning such as being tightly or loosely controlled or structured, 4) product-characteristic goal, that is, the characteristics of the goods or services produced and, 5) derived goal, that is, the uses to which the organization puts the power it generates in pursuit of other goals (1972a, p. 442).

Starting out from the planned change standpoint, Chin (1976) first cross-classifies the five textures of the organizational environments with the five contents of the environments. Those five textures are: plain, cluster, multicluster, turbulent and, articulated turbulent environments; whereas the five contents of the environments are: the means in environment for transforming environment, pattern of authority and power, nutriments and resources, potential information and, potential feedback system in the environments (1976, pp. 106-111). Organizational effectiveness is viewed in terms of the organization's ability to change the relationships between the organization and its environment. There are three possible changes: 1) change the properties of the environment of the organization, 2) change the interrelationship of the organization to the environment, and 3) change either the internal characteristics of the organization or its internal responsiveness to the changing environments (p. 111).

Beside the external determinants of organizational effectiveness,

there are also internal determinants arising out from the fact that an organization consists of participating individual members, and, has its own structure and processes. Individual members assume various roles based on a division of labor and subject to the need of coordination. These individual members have motivational characteristics that can enhance or hamper effectiveness. The human relation perspective, for instance, has argued that the participating individual members are complex social creatures with feelings, desires and fears. Their primary satisfactions were derived through the groups within which they interact. Thereby, effective organization are viewed as sets of interlocked functioning groups (Haas and Drabek, 1973).

The distribution, along various lines, of the participating individual members among social positions influences the role relations among them. Therefore, organization shows different tasks or job performed within the organization and contains also a hierarchy and distribution of power in decision-making. That the structural component of organization affects effectiveness has been shown in many studies. For instance, Pennings (1976) shows that the effects of structural components on organizational effectiveness were very strong.

Finally, organization shows several processes such as power and conflict, leadership, decision-making, communication and change (Hall, 1977). The processes have been proven related to organizational effectiveness. For instance, Bowers and Seashore (1966) show that the processual component of the organization, i.e. leadership is related to effectiveness.

Having discussed how each category of the conceptual elements relates to organizational effectiveness, the section that follows attempts to specify the conceptual elements themselves. The general framework of determinants of organizational effectiveness is described in Chart 2.

The specification of concepts and their definitions

The need to specify relevant concepts for shaping the general framework of determinants of organizational effectiveness has been repeatedly expressed in the early parts of this chapter. Blalock states that "the importance of a variable is always relative to particular problems and purposes" (1968b, p. 189). Aside from this, the difference in values operating in different societies provides another basis for the selection of concepts included in the model. In this regard, however, because the availability of materials on organizational effectiveness in nonwestern societies is rather limited, the present undertaking relies heavily on studies carried out in industrialized western societies, particularly the United States of America. Some inputs, though, are generated out of the diverse descriptive studies done in the nonwestern societies even though in most cases the unit of analysis is the community rather than a formal organization.

The scarcity of the materials related to organizational effectiveness in the nonwestern societies leads this present study to employ a relatively large number of concepts. Precaution is taken to avoid making the model become too complex. Therefore, ten concepts are included in the theoretical framework for this study. Following Zetterberg (1966),

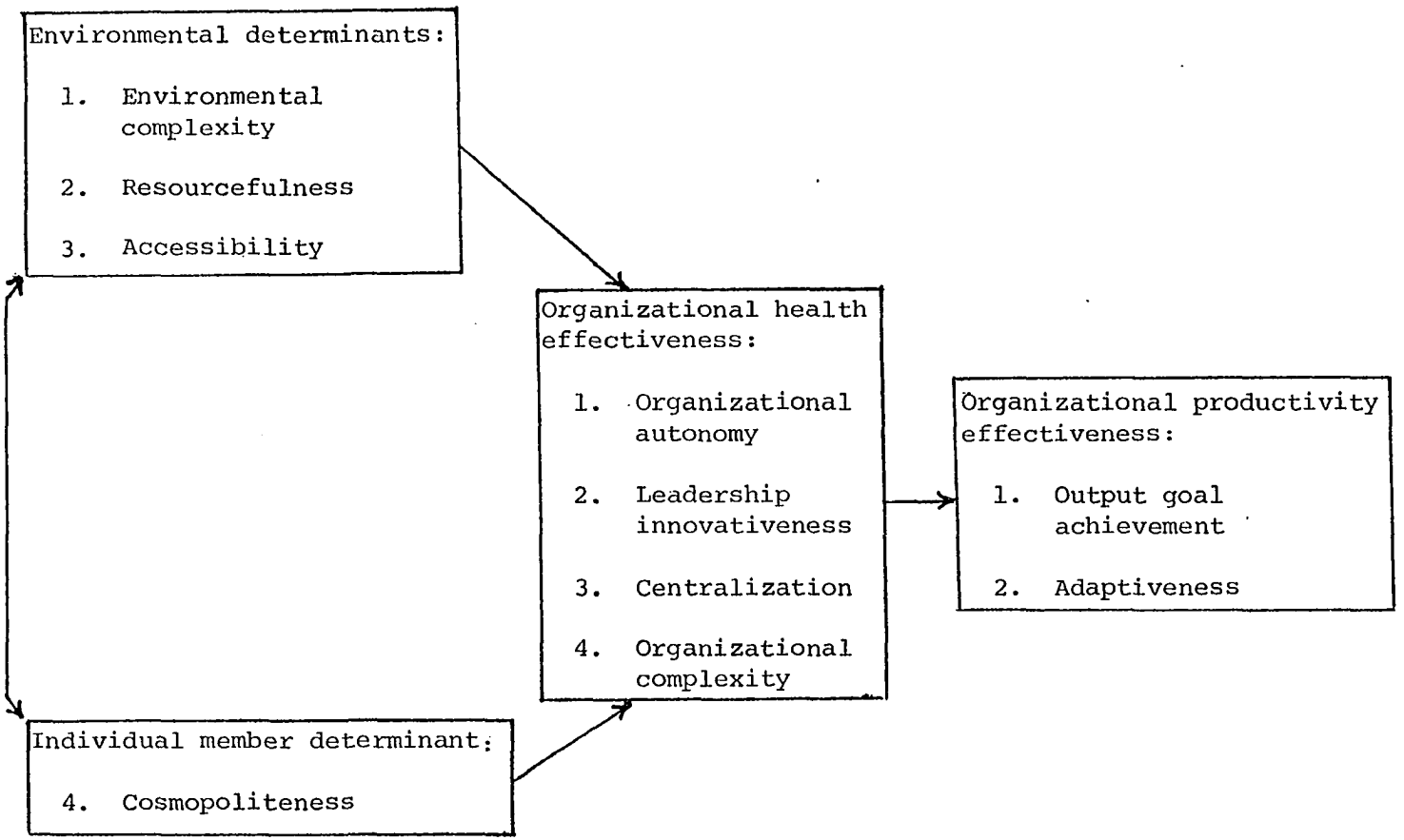

Chart 2. A general framework of determinants of VICHA's organizational effectiveness

these concepts are distinguished into determinants and result.

Result: Organizational productivity effectiveness

As shown in Figure 1, the organizational productivity effectiveness serves as the ultimate result. Organizational productivity focuses on questions that have to do with goal accomplishment, adaptation to change, efficiency and appropriate use of technology (Mulford et al., 1977). The two concepts are the output-goal achievement and adaptiveness.

Some sociologists define organizational effectiveness in terms of the degree of goal achievement (Price, 1968; Etzioni, 1975). However, criticisms have been raised against the concept of goal, particularly with regard to what the concept refers to. Etzioni (1975, p. 103), for instance, defines organizational goal as "a state of affairs which the organization is attempting to realize". Thompson (1967, p. 127) suggests that definition of this type appears to reify the abstraction "organization" by asserting that it, the abstraction, has goals or desires. He further adds that "there is little to be gained, however, by swinging to the other extreme of insisting that the goals of an organization are somehow the accumulated goals of its individual members" (p. 127). The consensus seems to be that organizational goals are difficult to define and that the effectiveness of goal attainment is equally difficult to evaluate (Champion, 1975).

The fact that goals may be viewed from multiple positions has led to a proliferation of attempts at classifying goals. Perrow (1972a), for

instance, distinguishes five types or levels of goals into social goal, output goal, system goal, product characteristic goal and derived goal. For this study, the concept output-goal is of immediate importance. Output-goal refers to "the general sector of the society or consumer toward which the products are directed" (Perrow, 1972a, p. 444). The concept referee is the public or community members in contact with organization. Since the present study deals with VICHA, the output goal concept is relevant particularly for understanding the organization's relationship to the environment and national policy issues. It may alert researchers to some massive problems of change which organizations may face (Perrow,1972a, p. 444). Therefore, the output goal achievement is herein defined as the extent to which the general sector of village community members are reached by development programs.

One of the major concerns in rural development programs in Indonesia is to keep up the capability of VICHA with the pace of development processes and progressions. Implied in the output goal achievement concept is the problem of change. Therefore, the second ultimate result is adaptiveness. Adaptiveness or organizational flexibility refers to "the extent to which the organization is able to adapt to internally induced change and to adapt to externally induced change" (Georgopoulos and Tannenbaum, 1957, p. 538). Taking the two concepts together, this present study not only relates organization to its environment through the exportation of its "product", but also takes into account the effects of environmental change and demand upon the organization. Therefore, the interplays between organization and its environments are captured in

these two dependent variables.

Environmental determinants

As an organization VICHA does not exist in a vacuum. There are two layers of VICHA's environments, that is, the village community and the supra-village bureaucratic organizational structure. Theoretically, sociologists and others have classified organization environment in a number of different ways. Emery and Trist (1975) distinguish organizational environments into placid randomized, placid clustered, disturbed reactive, and turbulent fields based on their causal texture, i.e., the area of inter-dependencies that belong within the environment itself. Chin (1976) distinguishes the textures of the environments into plain, cluster, multi-cluster, turbulent and articulated turbulent environments. Sells (1964) spells out the variables that make up the causal texture of organizational environment and differentiates them according to physical and social aspects of the environments. The physical aspects of the environment include variables such as gravity, climate and weather, terrain, natural resources, and culture products. Social aspects in contrast, include variables such as nonmaterial culture, social and economic states, factors defined by locales and geographic setting of the organization, and relations with other organizations. Buckley (1967, p. 50) states:

> That a system is open means, not simply that it engages in interchanges with the environment, but that this interchange is an essential factor underlying the system's viability, its reproductive ability or continuity, and its ability to change.

Therefore, considering VICHA as an open system, the present study employs three environmental determinants: environmental complexity, resourcefulness, and accessibility.

Sociologists have also distinguished organizational environments as simple and complex depending on the number of relevant physical and social factors that must be dealt with (Duncan, 1972; Pennings, 1975). Thereby, the concept of environmental complexity refers to the degree of "heterogeneity and range of environmental activities which are relevant to an organization's operation" (Child, 1972, p. 3).

Aside from their complexity, environments are important for organizations because they provide needed physical and social inputs in various forms for the continuous operations of organizations (Katz and Kahn, 1975; Yuchtman and Seashore, 1967). White (1974) argues that utilization of the controlled resources results from a series of allocative decisions within organizations. However, even more crucial than how controlled resources are being allocated within organization is the acquisition by organizations to the needed but scarce resources. Competition among organizations over the scarce resources determines how much of these resources can be controlled by each organization in the environments. Hage and Aiken (1972) point out that organizations in their study vary considerably in their ease of access to resources. Hence, resourcefulness refers to the degree of acquisition to "physical, social and cultural items that entail at least some utility, and include natural resources, labor, wealth, knowledge, legitimation, coersive power, and any others that could conceivably be used for the attainment of some ends" (Azumi, 1972, p. 93).

The third concept in this category is accessibility. Although location has some importance for organizations, not many sociologists utilize it in their endeavors. Blau and Scott (1962) point out the importance of community location to organization. Sells (1964, p. 529) indicates several factors defined by locales and geographic setting of the organizations, such as "physical and social factors peculiar to locales, remoteness, physical restraints (communication, travel, mobility), parameters of nonmaterial culture, social and economic states applicable to sites and locales of operation". Thereby the concept accessibility refers to the extent of ease to get to the relevant environments of the organization.

Individual determinant

Another category of organizational effectiveness determinants is the individual characteristic. Sells (1964) suggests seven classes of individual characteristics pertinent for a taxonomy of organization. These are abilities (aptitudes and acquired skills), motivational traits, stylistic personality traits, biologic and constitutional factors, social and demographic factors, motivations related to participation in the situation, and relationship among participants (p. 520). Time, funds and other constraints prevent the examination of the many individual characteristics. Therefore, this present study limits itself to only one characteristic, that is, cosmopoliteness.

Several reasons have fostered the inclusion of cosmopoliteness in this study. Merton (1968) points out that bureaucratic structure tends to produce conflict in the bureaucrat's contact with the public, and

therefore argues for more attention to the interplay between bureaucratic structure and personality. Since the focus of this study is on a change agency, Merton's plea seems to become even more important. In this regard Gouldner (1957) argues the necessity of being aware of social identities of individual members of organization and emphasizes the relevancy of the latent social identity. Gouldner (1957, p. 285) goes on further to state:

> While it is obvious that a group member may have many social identities, it needs to be stressed that not all of them are regarded as equally relevant or legitimately activated in that group. . . . This implies that when group members orient themselves to the latent identities of others in their group, they have involved in a relationship with them which is not culturally prescribed by the group norms governing their manifest roles.

Gouldner seems to suggest that latent social identities underly not only the actual social relations among members of an organization but also the behavior of organization as a whole. Therefore, having distinguished between local and cosmopolitan latent identities, Gouldner empirically evaluated the concepts. He concludes that cosmopolitan and local might be concepts useful in organizational analysis (Gouldner, 1957). For this present study, the concept cosmopoliteness is employed, and following Coward (1969, p. 80), cosmopoliteness refers to "the degree to which an individual's orientation is external to a particular social unit".

Organizational health effectiveness

So far six concepts have been specified as relevant for the present study. The last part of this section is to identify the conceptual elements of the organizational health effectiveness. Organizational

health refers to the condition of organization as a place of employment (Mulford et al., 1977). The four concepts suggested as pertinent to understand the organizational effectiveness are leadership, organizational autonomy, centralization, and organizational complexity.

All human endeavors which involve more than one person require some form of leadership to avoid confusion. Udy (1959) finds that in non-industrial societies bureaucracy and rationality tend to be mutually inconsistent in an organization, and that in the face of such inconsistency accommodative mechanisms arise which result in the continued operation of the organization at some level of efficiency. The existence of accommodative mechanisms is an indicative of the novelties in organizational leadership. Fathi (1965) emphasizes the importance of traditional leadership as an instrument for social change and states:

> . . . we believe that here lies the unique quality of the traditional leader which makes him an important element in the process of social change (p. 210).

The above discussion seems to suggest that in nonwestern societies the persons who hold a leadership position are important for the organization. Bierstedt (1975) recognizes this phenomena and makes a clear distinction between leadership and authority. He states:

> . . . leadership depends upon the personal qualities of the leader in the situations in which he leads. In the case of authority, however, the relationship ceases to be personal (p. 248).

If that is the case, then the successful completion of development tasks depends on the leader's qualities in responding to the changing environment. Merton (1968) identifies five modes of individual adaption to the environment, of which innovation is of special interest for the present

study. Merton argues that innovation takes place when "the individual has assimilated the cultural emphasis upon the goal without equally internalizing the institutional norms governing ways and means for its attainment" (p. 195). On the basis of the above discussion it appears that one conceptual element worth considering for the present undertaking is leadership innovativeness.

Leadership has been defined in a number of different ways (Shaw, 1976). Nevertheless, the definition by Bowers and Seashore (1966) is useful for the present task. They define leadership as "the behavior by one member of a group toward another member or members of the group which advances some joint aims" (p. 240). Thereby, leadership innovativeness refers to the degree of novelty in the behavior by one member of an organization toward another member or members of that same organization which advances some joint aims.

Organizations do not simply respond and adapt to their environments, but they also attempt to gain some control over their environment. Selznick (1966), for instance, shows how organizations employ cooptation as a means of adverting threats to its stability or existence. Eisenstadt (1959) indicates that dependence on resources and power has some influence on the bureaucracy's characteristics and activities. Therefore, the present study focuses also on organizational autonomy as one of its conceptual elements. As with many other concepts, organizational autonomy has been defined in many different ways. Following Pennings (1976, p. 690), organizational autonomy is herein defined as "the discretionary power of an organization with respect to elements of its environment".

A third conceptual element of organizational health effectiveness is centralization. Presthus (1972) observes that in the nonwestern societies, organizations as a miniature society show a high degree of centralization. This observation gains some support from Fathi (1965). The previous discussion in Chapter I also indicates similar phenomenon in the village government organization in Central Java. In this regard Jay (1956, p. 222) succinctly states:

> Authority structure in village government, as in other levels of administration, is pyramidal. Decisions on final action of any kind must be made by the head of the administrative level concerned.

Therefore, in this present study centralization is defined as "the degree to which decision-making is concentrated among the members of a social system" (Price, 1968, p. 60).

Achievement of some joint aims requires not only leadership innovativeness but also some knowledge and skills on the part of organization members in order to implement the necessary activities properly. The requirement becomes even more important for the organization acting as the change agency. In organizational literature the required knowledge and skill have been referred to as organizational complexity. More precisely, Price (1968, p. 26) defines organizational complexity as "the degree of knowledge required to produce the output of a system".

So far ten concepts have been identified as the elements for developing propositions with regard to organizational effectiveness of VICHA. The section below deals primarily with building the general propositions.

Propositions on organizational effectiveness

Dubin (1969, p. 28) states:

> It is only when the units are put together into models of the perceived world that theories emerge. This putting together of the units (or concepts) of a discipline into models . . . gives significance to the particular collection of units with which a scientist chooses to deal.

In attempting to put together the concepts discussed in the section above, the first task is to examine the probable links that may exist between the environmental determinants and the organizational health effectiveness. Child (1972) suggests that the greater the degree of environmental complexity, the more a profusion of relevant environmental information is likely to be experienced by organizational decision-makers. In facing this Miles, Snow and Pfeffer (1974) argue that decision-makers can take four stances in their perceptions: they can be "domain defenders", who attempt to allow little change to occur; "reluctant reactors", who simply react to pressure; "anxious analyzers", who perceive change but wait for competing organizations to develop responses and then adapt to them; or "enthusiastic prospectors", who perceive opportunities for change and want to create change and to experiment. These different perceptual bases are developed through the individual decision-maker's experiences in the organization. Thus, the same external or internal conditions can be viewed differently, depending upon who is doing the perceiving. For the present undertaking, the enthusiastic prospector stance seems to be relevant because the study deals with the change agency. Moreover, the enthusiastic stance reflects the meaning conveyed through the leadership innovativeness.

Based on his study on two Indonesian communities, Geertz (1963, 149)

proposes that "the larger group out of which the innovative group is emerging is one which is at present experiencing a fairly radical change in its relationship with the wider society of which it is a part". Fiedler (1967) shows that a task oriented type of leadership style is more effective in group situations which are either very favorable for the leader or which are very unfavorable for the leader. The above discussion, therefore, leads to the following proposition.

Proposition 1: The higher the degree of environmental complexity, the higher the degree of leadership innovativeness.

The degree of environmental complexity does not only affect leadership innovativeness, but it also impacts other organizational structural properties. Duncan (1972) finds that individuals in a decision unit with a dynamic-complex environment experience the greatest amount of uncertainty in decision-making. Dill's study (1958) on two Norwegian firms shows how the autonomy of managerial personnel may be influenced by the structure of the environment, by the acquisition of information about the environment, and by managerial perceptions of the meaning of environmental information. Although both Duncan and Dill look upon environmental complexity in terms of information, they do suggest that environmental complexity affects organizational autonomy, that is, the degree of organizational dependency on environments. Azumi (1972) looks upon environments in terms of resources and proposes that "the larger the number of suppliers and consumers of an organization, the greater the autonomy of the organization" (p. 98). The above discussion leads to the following proposition.

Proposition 2: The higher the degree of environmental complexity, the higher the degree of organizational autonomy.

Autonomy and centralization are sometimes used to denote the same thing. Price (1972) emphasizes that the two concepts refer to two different organizational properties and therefore must be distinguished. Price writes:

> The distribution of power between a social system and its environment is the referent for autonomy; the referent for centralization is the distribution of power within the social system (p. 36).

With regard to the link between environment and distribution of power in decision-making, Child (1972) argues the importance of recognizing the exercising of choice by organizational decision-makers. The critical link lies in the decision-maker's evaluation of the organization position in the environmental areas they regard as important, and in the action they may consequently take about its internal structure. Child further suggests that the environmental complexity brings change in centralization of decision-making as well as other structural variables. Aiken and Hage (1975) show that organization's relationship with its environment, i.e., the interdependence that arises through joint cooperative programs with other organizations, is related to several intra-organizational characteristics. One of their findings is that "organizations with many joint programs have slightly more decentralized decision-making structure" (p. 388). Pennings (1975) finds that the greater the environmental complexity, the lower the centralization as reflected by participativeness. Therefore, to further examine the above findings, this present study

suggests the following proposition.

Proposition 3: The higher the degree of environmental complexity, the lower the degree of centralization.

Eisenstadt (1959) argues that the development of bureaucratic organization is related to certain social conditions, the most important of which is the availability of various fluid, free floating resources. Yuchtman and Seashore (1967) point out that since the resources are of various kinds, the competitive relationships are multiple. If information can be regarded as a special form of resources, Dill (1958) finds that the autonomy may be influenced by the acquisition of information about the environment. Azumi (1972) argues that the more suppliers and consumers there are for an organization the less the degree of dependency of the organization on any one particular agent, whereas when the organization has just one supplier of an indispensable resource or just one consumer on the output side, then the organization's dependency on the agent is maximized and its autonomy minimized. The fourth proposition, then, can be suggested as follows.

Proposition 4: The higher the degree of resourcefulness, the higher the degree of organizational autonomy.

Pugh and associates (1972) find that organizations that are more dependent on their environments show greater centralization in authority structure and decision-making. Pennings (1975) expects to see a positive correlation between resourcefulness and participativeness since in rich environments members of an organization would have a large say in goal and task definitions. However, the empirical result shows that resource-

fulness correlates negatively with participativeness. Taking these two findings together leads one to find that the relationship between resourcefulness and centralization is not yet conclusive. Thereby, this present study seeks to further examine the proposition below.

Proposition 5: The higher the degree of resourcefulness, the lower the degree of centralization.

Walton (1973) argues that to the extent that the local community organizations become increasingly interdependent with respect to extra-community institutions, the structure of local leadership becomes more competitive. He reasons that local organizations with vertical ties to extra-community institutions frequently share in the capital and human resources of the larger entity and make them possible to sustain a broader scope of activities than would otherwise be the case. The result is that the contests surrounding the decision-making process become more frequent and more inclusive. Competition among local decision-makers to obtain needed resources requires some novelties in the leadership. Geertz (1963) hypothesizes that an innovative group crystallizes out of a larger traditional group which has a very long history of extra-village status and interlocal orientation.

The above discussion shows that as the environments expand, there are more resources available. Furthermore, extra-local-community organizational links are made possible by leaders who are more cosmopolitan in their orientations. Thus, two propositions emerge for this study to test.

Proposition 6: The higher the degree of resourcefulness, the higher the degree of leadership innovativeness.

Proposition 7: The higher the degree of cosmopoliteness, the higher the degree of leadership innovativeness.

Cosmopoliteness is a multidimensional concept. Gouldner (1957) indicates the three dimensions of cosmopoliteness, that is, loyalty to organization, commitment to role skills, and reference group orientation. Loyalty to organization refers to the extent of commitment and willingness to remain in the employing organization, whereas commitment to role skills is defined as the extent of interest one has to continuously advance the knowledge pertaining to tasks regardless of the employing organizations. Reference group orientation is herein defined as the source from which one seeks recognition and acceptance. A more cosmopolitan leader shows a low degree of loyalty to employing organization, a high degree of commitment to role skills, and a high degree of external reference group orientation (Gouldner, 1957).

Sub-proposition 7.1: The higher the degree of loyalty to other organization, the higher the degree of leadership innovativeness.

Sub-proposition 7.2: The higher the degree of commitment to role skills, the higher the degree of leadership innovativeness.

Sub-proposition 7.3: The higher the degree of external reference group orientation, the higher the degree of leadership innovativeness.

Walton and Geertz' arguments contain more ideas than just the two propositions above. One may expect that the links between local-community-organization and wider environments will allow a greater flow of information

which affects the degree of knowledge of individual members within the local organizations. Moreover, the links with extra-community organizations are made possible and maintained if members of local organizations possess some degree of cosmopolitan orientation. Thus two other propositions can be added.

Proposition 8: The higher the degree of resourcefulness, the higher the degree of organizational complexity.

Proposition 9: The higher the degree of cosmopoliteness, the higher the degree of organizational complexity.

Sub-proposition 9.1: The higher the degree of loyalty to other organization, the higher the degree of organizational complexity.

Sub-proposition 9.2: The higher the degree of commitment to role skills, the higher the degree of organizational complexity.

Sub-proposition 9.3: The higher the degree of external reference group orientation, the higher the degree of organizational complexity.

As pointed out earlier, location is not frequently employed in sociological research. Sells (1964) states that locales and geographic setting of organizations define many physical and social factors. Great physical restraints, especially in developing countries, hamper mobility and limit communication and therefore undermine the transfer of information. Following this argument the proposition below is suggested.

Proposition 10: The lower the degree of accessibility, the lower the degree of organizational complexity.

Furthermore, a greater physical restraint defined by location narrows vertical as well as horizontal links between local-community-organization

and extra-local organizations. Thus, the acquisition of greater resources by local organization is limited and also competition among leaders is greatly decreased or even not existent. Thereby the following propositions can be added to the list.

Proposition 11: The lower the degree of accessibility, the higher the degree of centralization.

Proposition 12: The lower the degree of accessibility, the lower the degree of leadership innovativeness.

So far attempts have been made to spell out the theoretical linkages between the environmental, individual, and the organizational determinants. The tasks that immediately follow are to examine the possible relationships between the organizational determinants themselves, and to look into the theoretical linkages between those determinants and the ultimate results.

Price (1968) indicates that autonomy of an organization is related to its centralization. He argues that only if the organization has some autonomy can it decentralize some of its decision-making. However, Price also notes that an organization may have a high degree of autonomy and a high degree of centralization. Fathi (1965) seems to be in agreement with the latter proposition by Price especially with regard to village community organization in developing countries. Fathi further writes:

> . . . if the projected innovation is incompatible, while the unit of adoption may be a collectivity, the decision-making will tend to be centralized in the hands of a few individuals (p. 207).

Presthus (1972) even finds that in a relatively complex organization in a developing country, the distribution of power of decision-making is

characterized by a high degree of centralization. Therefore, the following proposition can be put forward.

Proposition 13: The higher the degree of organizational autonomy, the higher the degree of centralization.

Perhaps one good example of how organizational autonomy relates to organizational productivity variables is Selznick's TVA and The Grass Roots. Selznick points out that in the earlier years of TVA's existence, it was greeted with widespread hostility and suspicion by the people of the valley. Nevertheless, during the first decade of its existence TVA gained general acceptance and support. This was made possible because of the unusual organizational autonomy granted to TVA. Selznick's finding leads Price to suggest that "organizations which have a high degree of autonomy are more likely to have a high degree of effectiveness" (1968, p. 96). Pennings (1976) empirically finds that autonomous organizations are more effective. Aside from being more effective, Selznick also shows that TVA's high degree of autonomy granted it the adaptiveness necessary to compete successfully against private companies which produced and distributed electricity. The above discussions lead to the formulation of these following two propositions.

Proposition 14: The higher the degree of organizational autonomy, the higher the degree of output goal achievement.

Proposition 15: The higher the degree of organizational autonomy, the higher the degree of adaptiveness.

In order to achieve some joint aims, organizations call for leadership. Grusky's study (1963) of sixteen professional baseball teams throws some

light on the linkage between leadership innovativeness and organizational effectiveness. Grusky writes:

> The structure of baseball organizations is such that ultimate responsibility for the performance of the team is almost fixed on one position, that of field manager. At the same time, official authority is generally concentrated in this position (p. 22).

The data of Grusky's study show that highly effective organizations experience few manager successions. Since the professional baseball organizations are highly competitive, the finding suggests that only managers who are highly innovative are able to bring their teams to successful performance. It appears that this finding gets some support from another study by Pryer, Flint, and Bass (1962). They state that "groups became or remained effective as long as they did not change leaders" (p. 391). Bowers and Seashore (1966) indicate that the "incidence of significant relationships of leadership to effectiveness is well above the chance level" (p. 256). They caution, however, that leadership is not adequate alone to predict effectiveness. Udy (1959) brings in another insight with regard to the relationship of leadership to effectiveness. After studying 150 formal organizations in 150 nonindustrial societies, Udy proposes that to continue operation at some level of efficiency, innovative efforts are called upon to create some accommodative mechanisms. This is because in those organizations "bureaucracy and rationality tend to be mutually inconsistent" (p. 794). Geertz (1963) is even more vocal on this matter and states that the function of leadership innovativeness" in such transitional but pretake-off societies is mainly to adapt customarily established means to novel ends" (p. 152).

Two propositions emerge from the discussions.

Proposition 16: The higher the degree of leadership innovativeness, the higher the degree of output goal achievement.

Proposition 17: The higher the degree of leadership innovativeness, the higher the degree of adaptiveness.

Some descriptive studies reveal that whenever members of organizations are less educated, the leaders take more liberty to make the decisions (Lembaga Penelitian Ilmu-ilmu Sosial, 1976). In this regard one of the major postulates in Hage's axiomatic theory of organization states that "the higher the complexity, the lower the centralization" (1972, p. 53). The present study submits this postulate to be empirically tested in relation to the organizational effectiveness of VICHA.

Proposition 18: The higher the degree of organizational complexity, the lower the degree of centralization.

Price (1968) suggests that organizations which have a high degree of division of labor are more likely to have a high degree of effectiveness. He also indicates that the term complexity is used as a synonym for division of labor. Contrary to Price, Hage (1972a) posits a theorem which states that "the higher the complexity, the lower the production" (p. 53). Moreover, Hage proposes that "the lower the complexity, the lower the adaptiveness" (p. 53). Obviously, Hage spells out the defining criteria of effectiveness (Mulford et al., 1976). Therefore, for the present study the following propositions are suggested for further examination.

Proposition 19: The higher the degree of organizational complexity, the higher the degree of output goal achievement.

Proposition 20: The higher the degree of organizational complexity, the higher the degree of adaptiveness.

Price (1968) suggests that highly centralized organizations with respect to both tactical and strategic decisions are more likely to be highly effective. By spelling out the defining criteria of effectiveness, Hage (1972a, p. 53) offers a postulate and a theorem relating centralization to organizational effectiveness, that is, "the higher the centralization, the higher the production", and "the higher the centralization, the lower the adaptiveness". Comrey, Pfiffner and Beem (1952) confirm the work of Coch and French who found that securing the participation of workers in the process of introducing a change in production routine resulted in less resistance to change and higher production than had been the case where changes were introduced without workers' participation. In other words, Comrey and associates find that a lower degree of centralization results in both a higher degree of adaptiveness and production. Pennings (1976) also shows that a lower degree of centralization results in a more effective organization, whereas Hage and Aiken (1972) find that the greater the participation in agency-wide decisions, the greater the rate of program change or adaptiveness in organization. Another study, however, indicates a positive relation between centralization and effectiveness (Presthus, 1972). In this regard Hage and Aiken could be right in saying that "both arguments are probably correct" (1972, p. 485). Nevertheless, the position taken by this present study is slightly

different from those suggested so far. While centralization has a direct relationship with the production criterion of effectiveness, this present study suggests that it does not directly relate to the adaptiveness criterion. Since the necessary adaptation may bring along impacts that can erode the existing power distribution in decision-making within the organization, it is more likely that "unwanted" effects can be decreased through the leadership, especially in the case of developing countries. Thereby, the propositions are as follows.

Proposition 21: The higher the degree of centralization, the higher the degree of output goal achievement.

Proposition 22: The higher the degree of centralization, the higher the degree of leadership innovativeness.

So far twenty-two propositions and six sub-propositions have been suggested. They are all interrelated, thus they form a model of organizational effectiveness. The construction of this model is carried out in the section that follows.

A model of organizational effectiveness

Having put forward all the propositions and sub-propositions, the step that follows is to construct a model based on the interrelationships among the propositions and sub-propositions. For brevity, the following notations are employed.

Opga = Output goal achievement

Adap = Adaptiveness

Ecop = Environmental complexity

Reso = Resourcefulness

Acce = Accessibility

Cosmo = Cosmopoliteness

Lorg = Loyalty to other organization

Cosk = Commitment to role skills

Ergo = External reference group orientation

Orau = Organizational autonomy

Ocop = Organizational complexity

Cent = Centralization

Ledi = Leadership innovativeness

Ua...f = Error terms

 = Causal relationship

 = Correlation

Figure 1 presents a path model of organizational effectiveness based on the interrelationships among the propositions and sub-propositions.

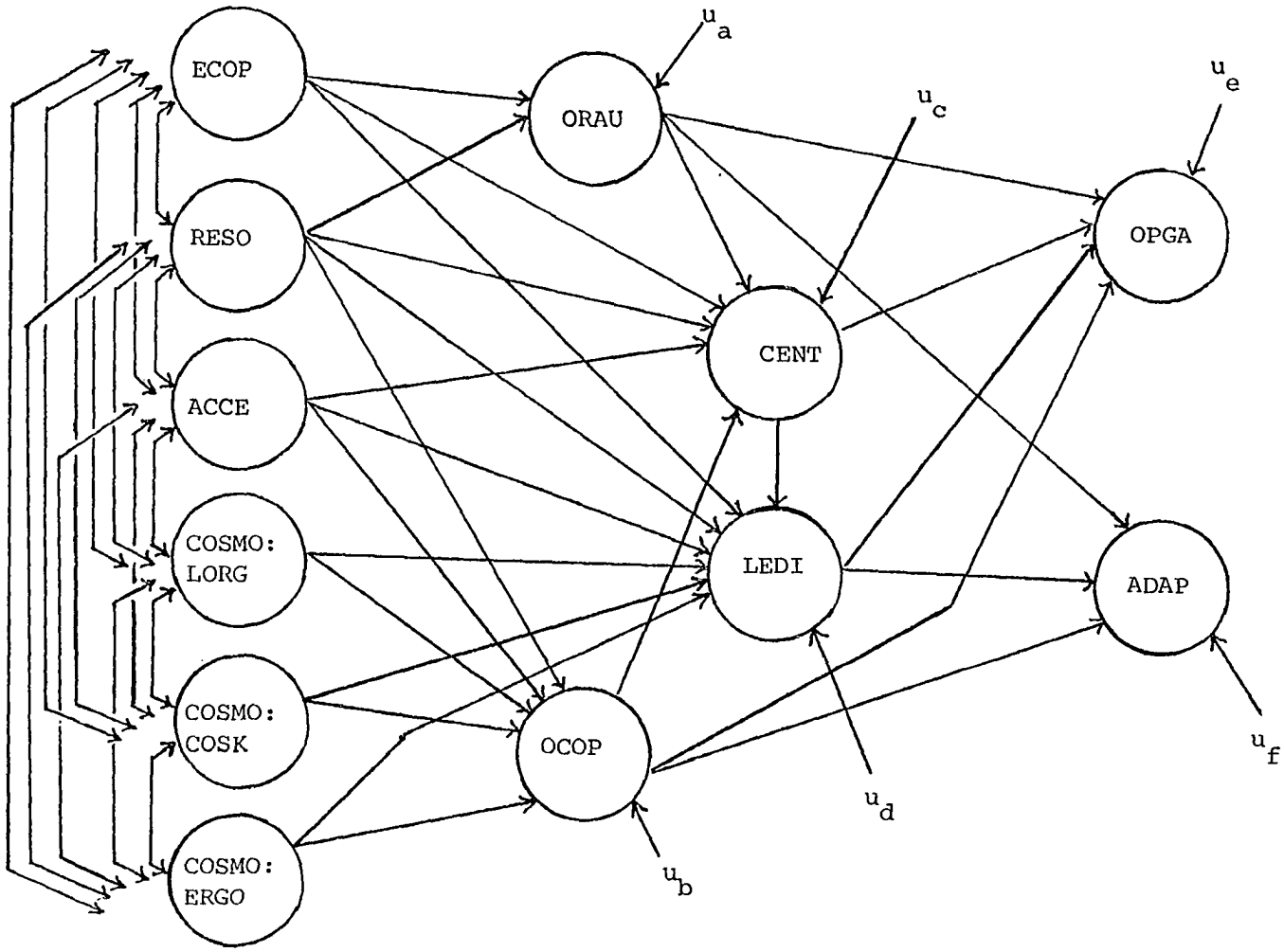

Figure 1. A path model of organizational effectiveness

CHAPTER III. METHODOLOGY

The present chapter attempts to describe the research setting, the population and sampling procedure for this study. The unit of analysis is also specified. This is followed by the description of data sources and collection procedure.

In order to make the propositions testable this chapter also aims at explicating the general concepts into empirical measures and to formulate the empirical hypotheses. However, before testing the empirical hypotheses the reliability and validity of the measures are examined. Finally, the statistical techniques employed for analyzing the data are discussed.

The Research Setting

Three regencies of Central Java have been purposively selected in order to test the propositions. The selected regencies reflect two basic properties of the province, that is, population density and agricultural productivity. Table B3 in Appendix B describes the regencies in some detail.

The adoption of the two basic criteria is not without reason. As indicated earlier in Chapter I, the focus of both the Pelita I and the Pelita II is on agricultural development, particularly rice production, and population control. Therefore, in order to examine organizational effectiveness of VICHA, regional properties pertinent to the tasks performed by VICHA need to be considered. As the basis, the average figures of population density and agricultural productivity, particularly

rice, for the whole Central Java province was employed to make the distinctions into high, medium and low categories.

Although cross-classifying the two properties results in nine cells, only three are selected in this present study, that is, high-high, medium-medium, and low-low cells. The time and fund limitations and the various difficulties presented by the secondary data employed to identify both the population density and agricultural productivity have prevented the author from examining all the nine cells.

Besides the factor discussed above, the three regencies were selected also because in the recent past a number of descriptive village studies were undertaken in these areas. Realizing the fact that the nature of this present study is one of the first steps in the area of organizational effectiveness in Indonesia, the existing descriptive village studies can certainly provide some inputs. Finally, part of the research area is already familiar to the author due to his past research. Obviously, relations established during the past undertakings facilitated this study.

The three regencies providing the research setting are Sukaharjo, Semarang, and Demak. Sukaharjo regency reflects the high-high characteristics, Semarang medium-medium, and Demak low-low.

The Population, Sampling Procedure and the Unit of Analysis

Having selected the three regencies, the step that followed was to form the population for the study. To do that, all the villages in the three regencies were listed and numbered. This resulted in a total of

704 villages; hence there are 704 village change agencies as well.

Since there were only about 111 working days available and limited research funds, a maximum of 130 village change agencies were set as the sample size. The sample was randomly selected which gave a probability of 0.185. The sub-sample size for each regency was determined proportionately to the sub-population. However, some adjustments were made to fit the research field condition.

In addition to the 130 organizations, ten more were selected for the pre-testing of questionnaires. In actuality, there were only 9 and 128 organizations researched respectively during the pre-testing and the main data collection stages because of several factors, such as within district sport competition, unaccessibility due to bad road conditions etc. Table B4 in Appendix B presents the population and the sample size for the study.

Originally, it was planned that only the Village Government Organization would comprise the unit of analysis for this present study. However, a more recent development in the rural Central Java necessitated that the Village Social Institute also be included as another element in the unit of analysis. Thus, for this study both the Village Government Organization and the Village Social Institute were considered as one unit, the Village Change Agency (VICHA) herein regarded as the unit of analysis.[1]

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[1] See alsc Chart 1.

Data Sources and Collection Procedures

Four main sources have been employed to acquire data required for this present study. The first was VICHA officials having the following roles: villagehead, village-secretary, hamlethead, agricultural official, vice-chairman of village social institute, village religious official or section head of religious matter of village social institute. Thus, six officials were purposively selected from each sampled VICHA.

As the head of VICHA, the village head naturally had the most important role to play in the village development process. The village head is assisted by the vice-chairman of the village social institute in carrying out the tasks. The village secretary knows most data related to development activities because it is his or her job to keep all the records and to make reports.

Since a village consists of several hamlets, hamletheads provide the necessary links between VICHA and population in hamlets. Therefore their involvement in many development activities are needed. The agricultural official of the village is responsible for initiating and expanding agricultural development activities within the village, whereas the religious official plays important roles in predominantly Islam religious communities in many rural areas of Central Java.

The data from this first source were used to test the propositions. Nevertheless, because the data source was individual officials whereas the unit of analysis was the VICHA organization, the average of all individual official scores per empirical indicator was employed to represent the

organizational score.

The second source was the data gathered from heads of 39 sub-districts within which the sampled VICHAs were located. The data primarily deal with the sub-district heads' assessments with regards to environmental condition, organizational health, and organizational productivity variables.

The third data source was key informants both at the village and the sub-district levels. Key informants were employed to obtain data primarily related to VICHA and village community as a whole, and the policy related to rural development.

The fourth source was the secondary data at both the village and sub-district offices. The data were primarily related to the various development programs carried out at the village level and the availability of development facilities within the sub-districts.

There were four sets of questionnaires administered during the field research. The first set contained questions pertinent for testing the propositions as well as questions to obtain bio-data from individual officials. The second set asked for sub-district head's assessment on VICHA as well as bio-data. The third set dealt with questions related to VICHA whereas the fourth set focused on data about the village community.

The field research was implemented in several phases. The first phase was to recruit and to train ten research team members. This took place from July 5 to 15, 1978. The research permissions were also secured during this period of time.

The questionnaire pre-testing phase took place from July 15 to 23, 1978. This resulted in the various changes in the questionnaires, their contents, wordings and response formats.

The main data collection phase took place from July 31 to October 14 in 128 VICHAs located in 39 sub-districts within three regencies. Each two-member team was assigned to collect data for the four questionnaire sets. The assignment of two members per team was not only to ease the task, but also to serve as the built-in control mechanism. Several on-the-field meetings were held to review the work progress, to discuss problems, and to decide on future steps. Another control mechanism was provided by the contents of questionnaires themselves, particularly the ones dealing with individual official's bio-data, VICHA and village community characteristics.

Unexpected rainy days during the dry season of 1978, after-fasting festives, and other matters called for flexibility in scheduling the time and the research activities. But they also presented some problems to find the sampled VICHAs and the selected officials. Consequently, two VICHAs were dropped out of the total 130 and the numbers of officials researched also varied from one VICHA to another, ranging from two to a maximum of six officials. When the field research ended, data from 698 officials in 128 VICHAs had been obtained.

To end this section several notes are in order. First, because of limited time there was not sufficient opportunity given to team members to be accepted as "our own people" in each village community. Second, as the field research progressed, it became apparent that some officials were

fairly new in their roles. Finally, the research team members sensed some reluctance on the part of some officials to give unfavorable answers in the presence of the village head. Although actions were taken to prevent this from happening, it was impossible to have complete control over the field situation. Obviously all these factors may have had some impact on the measurement of the concepts.

Explication and Measurement of General Concepts

In testing propositions, Blalock (1968a) recognizes the existence of two different languages, the theoretical and the operational, which necessitates efforts to bridge the gap between the two. Since the propositions are stated in terms of theoretical language or concepts, steps must be taken to formulate them in terms of operational language or empirical indicators. Blalock (1968a, p. 24) states:

> The languages can not be linked by any strictly logical argument. Instead, a correspondence between two concepts, one in each language, must be established by common agreement or a priori assumption.

Thereby, Blalock suggests the construction of a specific auxiliary theory containing "a whole set of additional assumptions, many of which may be inherently untestable" (p. 25). In a similar vein Northrop calls for the use of an epistemic correlation, that is, "a relation joining an unobserved component of anything designated by a concept by postulation to its directly inspected component denoted by a concept by intuition" (1969, p. 119). Dubin (1969) indicates that one of the principal criteria of an adequate empirical indicator is that "the operation or operations

involved in the relation between observer and the apparatus he uses for observing may be explicitly set forth so that it or they may be duplicated by any other equally trained observer" (p. 185). Therefore, the first step in this chapter is to explicate the concepts into their empirical indicators and to define their epistemic correlations. To do this, the definitions of concepts and sub-concepts are presented. This is followed by the empirical measures employed and the epistemic correlations that bridge the concepts and their indicators.

Linking the two languages

The concept of output goal achievement refers to the extent to which the general sector of village community members are reached by development programs. Eleven empirical indicators are employed to measure the concepts and they are stated in the following questions:

1. When you compare the Pelita I to the Pelita II, to what extent has development of production infrastructure been implemented in this village? (var091).[1]

2. When you compare the Pelita I to the Pelita II, to what extent has development of communication infrastructure been implemented in this village? (var092).

3. When you compare the Pelita I to the Pelita II, to what extent has development of marketing infrastructure been implemented in this village? (var093).

4. When you compare the Pelita I to the Pelita II, to what extent has development of social/village government infrastructure been implemented in this village? (var094).

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[1] Variable will also hereinafter be indicated as var. The variable number indicated at the end of every question refers to the variable list in the codebook using organization as the unit of analysis.

5. When you compare the Pelita I to the Pelita II, to what extent has improvement in village appearance been implemented in this village? (var095).

6. When you compare the Pelita I to the Pelita II, to what extent has planting trees along the sides of village main roads been implemented in this village? (var096).

7. When you compare the Pelita I to the Pelita II, to what extent has youth up-building been implemented in this village? (var097).

8. When you compare the Pelita I to the Pelita II, to what extent has village assembly meeting been implemented in this village? (var098).

9. When you compare the Pelita I to the Pelita II, to what extent has sport and cultural up-building been implemented in this village? (var099).

10. When you compare the Pelita I to the Pelita II, how great is the gap between the number of eligible couples and the number of actual participants of family planning in this village? (var100).

11. When you compare the Pelita I to the Pelita II, to what extent has the Bimas[1] credit been repaid? (var101).

Variables 091 through 094 are employed because they provide the basis for other kinds of development as reflected in variables 095 to 101. Moreover, the first four variables are employed by the Village Development Directorate of the Ministry of Home Affairs to determine the type within which a particular village is classified. The other indicators are related to the kinds of village development programs in the areas of rice production and population control, and the improvements in other spheres of village life.

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[1] Bimas is the abbreviation of Bimbingan masal or mass guidance in the rice production program.

To link the empirical indicators to the concept of output goal achievement, the following epistemic correlations[1] are employed.

E.C. 1: Change in the extent of development of production infrastructure is a measure of the output goal achievement.

E.C. 2: Change in the extent of development of communication infrastructure is a measure of the output goal achievement.

E.C. 3: Change in the extent of development of marketing infrastructure is a measure of the output goal achievement.

E.C. 4: Change in the extent of development of social/village government infrastructure is a measure of output goal achievement.

E.C. 5: Change in the extent of improvement in village appearance is a measure of the output goal achievement.

E.C. 6: Change in the extent of planting trees along the sides of village main roads is a measure of the output goal achievement.

E.C. 7: Change in the extent of youth up-building is a measure of the output goal achievement.

E.C. 8: Change in the extent of implementation of village assembly meeting is a measure of the output goal achievement.

E.C. 9: Change in the extent of sport and cultural up-building is a measure of the output goal achievement.

E.C. 10: Change in the extent of gap between the numbers of eligible couples and actual participants of family planning is a measure of the output goal achievement.

E.C. 11: Change in the extent in repayment of Bimas credit is a measure of the output goal achievement.

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[1] Epistemic correlation will also hereinafter be indicated as E.C.

Figure 2 summarizes the explication process discussed above.

As mentioned earlier, the empirical indicators represent the various development activities at the village level performed by and/or under the supervision of VICHA during the Pelita I and Pelita II. Therefore, the change refers to the opinion of VICHA's officials with regard to the net results of each activity between the two periods.

Although it will be explained later in this chapter, at this point there are two matters worth mentioning. First, in comparing the Pelita I and the Pelita II, respondents were asked of their opinion with regard to the result of Pelita I, that is, whether the achievement for each development activity has been great or little. The reason for this response set up is because the pre-testing of indicators revealed that respondents tend to automatically indicate that achievements in all areas of activities during Pelita II have been always great or better. To encourage respondents to give more thought, they were asked about Pelita I instead of Pelita II. However, because the aim is to get the data for Pelita II, the assignment of values in the coding process was done in reverse, that is, "little" in Pelita I means "great" in the Pelita II, vice versa. Appendix C shows detail coding process for the empirical indicators.

Second, examining the empirical indicators shows that the extent of impacts by each development program on village members varies. Activities related to the development of infrastructures, for instance, had greater impacts than the youth up-building program. Thereby, the programs are weighted on the basis of the author's subjective judgement

with regard to their relative importance to the overall rural and national development. Ideally, it is better to have a panel of judges doing the weighting, but several constraints prevented the author from doing so. The programs related to infrastructures are weighted 5; the programs related to village meeting, family planning and Bimas credit are weighted 4. The youth, sport and cultural up-building programs are weighted 3, whereas the program on village appearance is weighted 2, and the remainder is weighted 1.

Adaptiveness refers to the extent to which the organization is able to adapt to internally induced change and to adapt to externally induced change. The six empirical indicators employed to measure adaptiveness are presented in the following questions.

1. When you compare the Pelita I to the Pelita II, to what extent has the making of the village development budget changed in this village government organization? (var103).

2. When you compare the Pelita I to the Pelita II, to what extent has the administrative improvement been carried out in this village government organization? (var104).

3. When you compare the Pelita I to the Pelita II, to what extent has the amount of time devoted to writing up proposals for projects funded through the village subsidy program changed in this village? (var105).

4. When you compare the Pelita I to the Pelita II, to what extent has the making of rules for implementing development activities been carried out in this village government organization? (var106).

5. In the Pelita II to what extent has the Village Social Institute of this village been able to make its own statute? (var107).

6. In the Pelita II to what extent has the Village Social Institute of this village been able to increase the number of sections and/or sub-sections? (var108).

As with the first concept, the indicators measuring adaptiveness were selected from the various activities performed within VICHA in order to be able to carry out the development responsibilities properly. Also, the treatment of change and coding is similar to the one discussed earlier. It must be pointed out, however, that indicators related to Village Social Institute are limited to the Pelita II because during the Pelita I the Village Social Institute was still in its formative stage.

To relate the concept to its empirical measures, the following epistemic correlations are defined.

E.C. 12: Change in the extent of making the development budget is a measure of the adaptiveness.

E.C. 13: Change in the extent of administrative improvement is a measure of the adaptiveness.

E.C. 14: Change in the amount of time spent to write up proposal for the projects funded through the village subsidy program is a measure of the adaptiveness.

E.C. 15: Change in the extent of making rules for implementing development activities is a measure of the adaptiveness.

E.C. 16: The extent of making the Village Social Institute's own statute is a measure of the adaptiveness.

E.C. 17: The addition of numbers of sections and/or sub-sections of Village Social Institute is a measure of the adaptiveness.

Figure 2 presents a summary of the explication process of the concept adaptiveness.

Since each of the activities used as indicators differs in terms of its importance to the VICHA functioning, a weighting is assigned to each program. The program on village development budget is weighted 5; the

ABSTRACT

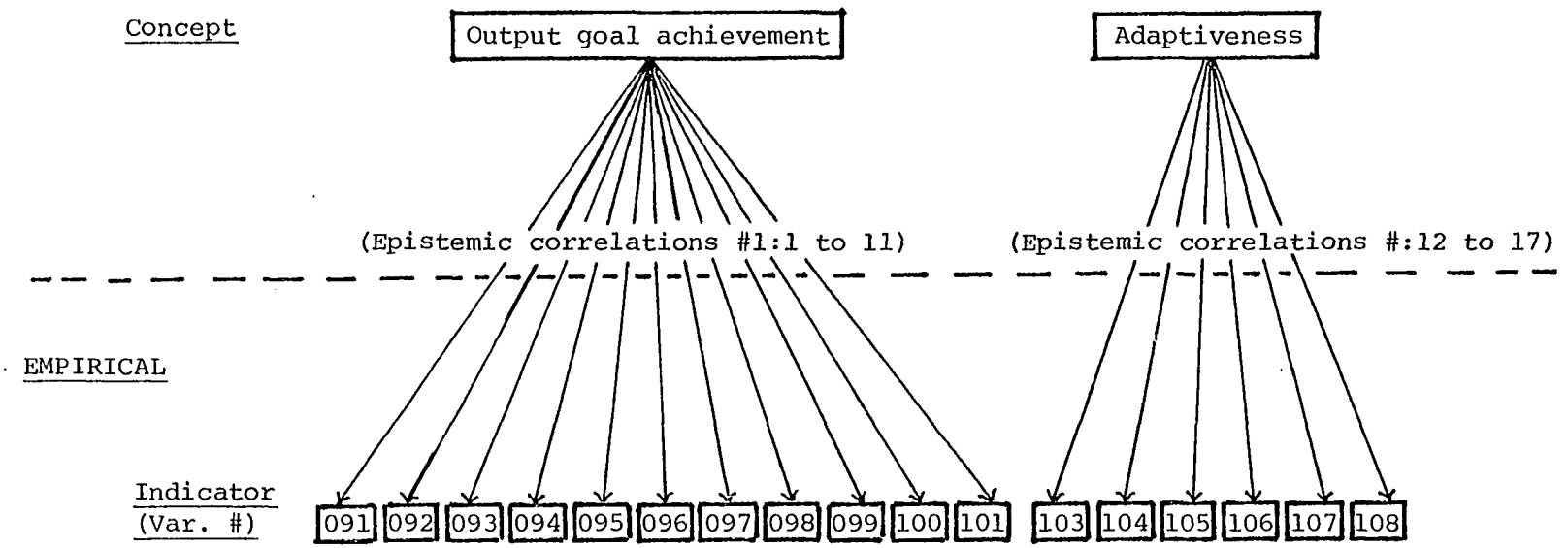

Figure 2. Theoretical-empirical representation of the output goal achievement and adaptiveness concepts

making of rules for implementing development activities and of statute of Village Social Institute is weighted 4. The administrative improvement program is weighted 3, whereas the addition of a number of sections and/or sub-sections of Village Social Institute is weighted 2. The amount of time given to write up proposals is weighted 1. Similar to the concept output goal achievement, the weighting is solely based on the author's own judgement.

Leadership innovativeness refers to the degree of novelty in the behavior by one member of an organization toward another member or members of that same organization which advances some joint aims. In measuring leadership innovativeness, seven empirical indicators have been employed as shown in the following questions:

1. When you compare the Pelita I to the Pelita II, how often have you felt you are being ordered to carry out your tasks? (var044).

2. To what extent is the cleanliness of your home comparable to the cleanliness of other homes in this village? (var045).

3. When you compare the Pelita I to the Pelita II, how successful have Village Government and Village Social Institute officials been in carrying out the most important development projects of this village? (var046).

4. Of the sixteen items that were being held in the inter-village competition program in this village, how much effort, do you think, has been put into any of these items to serve as an example to the neighboring villages in this sub-district? (var047).

5. In your opinion, to what extent has the Village Social Institute been successful in supporting this Village Government to carry out development activities of this village? (var048).

6. When you compare the Pelita I to the Pelita II, how successfully has the Village Government met the deadline for submitting project proposal to be funded through the village subsidy program? (var049).

7. When you compare the Pelita I to the Pelita II, how often have the Village Government and Village Social Institute experienced turnovers in this village? (var051).

To bridge the concept and sub-concepts to their indicators, the following epistemic correlations are defined.

E.C. 18: Change in the frequency of being ordered to carry out one's tasks is a measure of leadership innovativeness.

E.C. 19: The relative cleanliness of VICHA officials' homes to other homes in the village is a measure of leadership innovativeness.

E.C. 20: Change in the success of implementing the most important village development project is a measure of leadership innovativeness.

E.C. 21: The amount of effort put into any of the sixteen items of the inter-village competition program that serves as an example to the neighboring villages in the sub-district is a measure of leadership innovativeness.

E.C. 22: The extent of success in securing the support of Village Social Institute in carrying out village development activities is a measure of leadership innovativeness.

E.C. 23: Change in success to meet the deadline for submitting project proposals funded through the village subsidy program is a measure of leadership innovativeness.

E.C. 24: Change in the frequency of VICHA officials turnovers is a measure of leadership innovativeness.

Figure 3 summarizes the explication process of the concept leadership innovativeness.

Similar to the other concepts explained earlier, the change with regard to leadership innovativeness is a net result between the

Pelita I and the Pelita II. The coding process is also similar to the one explained earlier.

Centralization refers to the degree to which decision-making is concentrated among the members of a social system. The concept is empirically measured using the following two questions.

1. With regard to the development of this village, how great a role do you have in making important decisions? (var071).

2. With regard to generating village self-support for the development, to what extent has advice from the following officials assured the success of such effort? (The officials include: hamlethead, var072; agricultural village official, var073; co-chairman of Village Social Institute, var074; village religious official, var075; village head, var076; sectionhead of religious matter of Village Social Institute, var077; and village secretary, var078).

The following epistemic correlations serve as the link between the concept and its indicators.

E.C. 25: The amount of role each official has in making important decisions is a measure of centralization.

E.C. 26: The extent of success assured by advice of each official in generating village self-support for development is a measure of centralization.

Figure 3 summarizes the explication process for the concept.

Organizational complexity refers to the degree of knowledge required to produce the output of a system. There are five indicators employed to measure this concept.

1. When you compare your knowledge about the culture and tradition of this village to your skill in carrying out tasks of village development, how important has your knowledge on the culture and tradition been in your election to your present office? (var065).

2. Do you feel that you have sufficient skills for carrying out the development tasks of this village? (var066).

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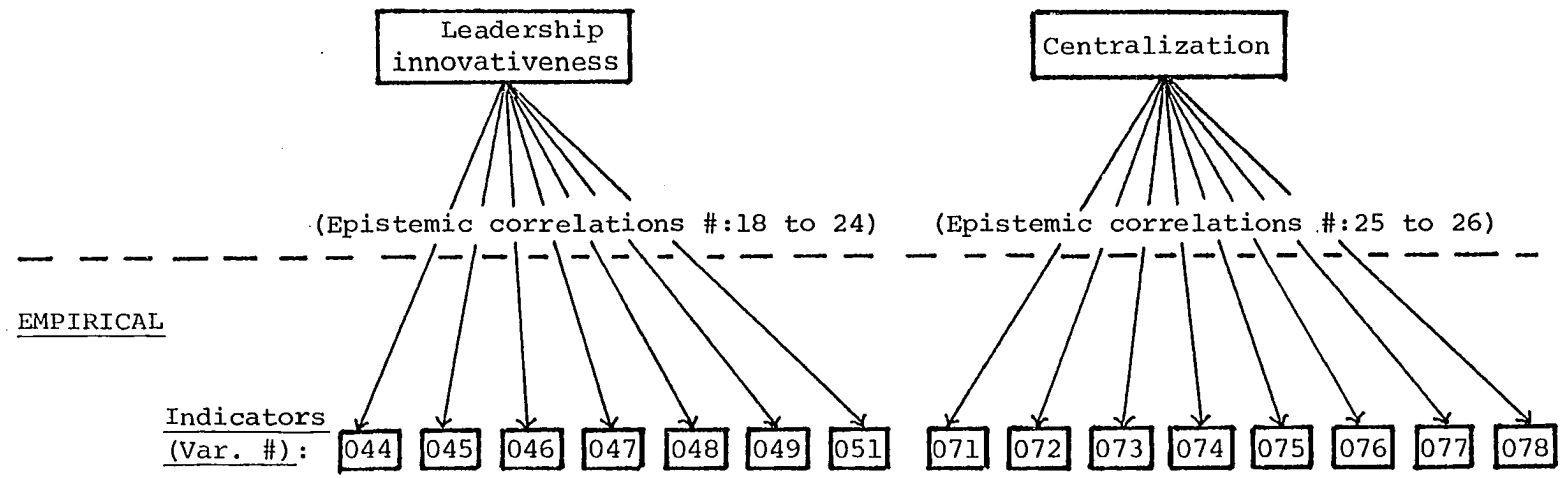

Figure 3. Theoretical-empirical representation of the leadership innovativeness and centralization concepts

3. Do you feel that you have sufficient educational background for carrying out the development tasks of this village? (var067).

4. When you compare the Pelita I to the Pelita II, to what extent have the educational and skill requirements been emphasized with regard to the development tasks of this village? (var068).

5. When you compare the Pelita I to the Pelita II, to what extent have you taken part in courses or short training programs for improving your knowledge and skills with regard to the development tasks of this village? (var069).

The selection of indicators is based on the fact that in each Pelita the kind and amount of tasks performed by VICHA increase and require more knowledge and skills on the part of officials. Thereby, the focus is on the sufficiency of knowledge and skills on the part of VICHA officials.

The link between organizational complexity to its empirical indicators is provided by the following epistemic correlations.

E.C. 27: The relative importance of knowledge about the village culture and tradition is a measure of organizational complexity.

E.C. 28: The sufficiency of skills for carrying out development tasks is a measure of organizational complexity.

E.C. 29: The sufficiency in educational background for carrying out development tasks is a measure of organizational complexity.

E.C. 30: Change in the emphasis given to educational and skill requirements for carrying out development tasks is a measure of organizational complexity.

E.C. 31: Change in the participation in knowledge and skill improvement programs is a measure of organizational complexity.

Similar to the previous concepts, the change is a net result between the Pelita I and Pelita II. Although the aim is to get the data for the Pelita II, the respondents were requested to give their opinion for the

Pelita I. Therefore, the scoring was done in reverse as detailed in Appendix C. Figure 4 summarizes the process of explication of the concept organizational complexity.

The fourth independent variable is organizational autonomy. Organizational autonomy refers to the discretionary power of an organization with respect to elements of its environment. The list of questions below is the empirical measure for the concept.

1. How convinced are you that the agreements reached in village assembly meetings assure successful implementation of development activities in this village? (var055).

2. When you compare the Pelita I to the Pelita II, how often have results of the village assembly meetings not been carried out? (var056).

3. When you compare the Pelita I to the Pelita II, how much has the village assembly meeting had to say in determining the amount of contributions of village members which goes to the sub-district head office for financing the sub-district development projects? (var063).

4. How convinced are you that directions from sub-district head office and other governmental agencies at sub-district (particularly 'special section'/K) assure successful implementation of development activities in this village? (var057).

5. When you compare the Pelita I to the Pelita II, how much have the sub-district head office and other governmental agencies at sub-district given directions in regards to the implementation of the mass guidance program in this village? (var058).

6. When you compare the Pelita I to the Pelita II, how much have the sub-district head office and other governmental agencies at sub-district given directions in regards to the implementation of the family planning program in this village? (var059).

7. When you compare the Pelita I to the Pelita II, how much have the sub-district head office and other governmental agencies at sub-district given directions in regards to the implementation of youth up-building programs in this village? (var060).

8. When you compare the Pelita I to the Pelita II, how much have the sub-district head office and other governmental agencies at the sub-district given directions in regards to the implementation of administrative improvement of the Village Government Organization? (var061).

9. When you compare the Pelita I to the Pelita II, how much have the sub-district head office and other governmental agencies at the sub-district given directions in regards to the appointment or dismissal of Village Government and Village Social Institute officials? (var062).

The use of variables 055, 056 and 063 is to measure the degree of organizational autonomy of VICHA in relation to village community as represented through the village assembly meeting, whereas the other indicators aim at measuring the degree of autonomy of VICHA in relation to the extra-village environment, particularly the sub-district government organization. The change between the Pelita I and the Pelita II is treated in a manner similar to the concepts previously discussed.

The following epistemic correlations serve to link the organizational autonomy concept to its empirical indicators.

E.C. 32: Conviction that agreement reached in village assembly meetings assures the success of village development implementation is a measure of organizational autonomy.

E.C. 33: Change in the extent of results of village assembly meeting not being carried out by Village Government Organization is a measure of organizational autonomy.

E.C. 34: Change in the extent of power the village assembly meeting has in determining the amount of contributions of village members which goes to the sub-district head office to finance the sub-district development projects is a measure of organizational autonomy.

E.C. 35: Conviction that sub-district offices' directions assure the successful implementation of development activities is a measure of organizational autonomy.

E.C. 36: Change in the extent of directions given by sub-district offices in regards to the implementation of mass-guidance program is a measure of organizational autonomy.

E.C. 37: Change in the extent of directions given by sub-district offices in regards to the implementation of family-planning program is a measure of organizational autonomy.

E.C. 38: Change in the extent of directions given by sub-district offices in regards to the implementation of youth up-building program is a measure of organizational autonomy.

E.C. 39: Change in the extent of directions given by sub-district offices in regards to the implementation of administrative improvement in Village Government Organization is a measure of organizational autonomy.

E.C. 40: Change in the extent of directions given by sub-district offices in regards to the appointment or dismissal of VICHA officials is a measure of organizational autonomy.

Figure 4 summarizes the explication process of the concept organizational autonomy.

Another determinant considered here is environmental complexity defined as the degree of heterogeneity and range of environmental activities which are relevant to an organization's operation. With regard to VICHA, its tasks environments consist of two major components, that is, village community and supra-village government structure. Therefore, the indicators below relate the concept to those parts of the environments.

1. When you compare the Pelita I to the Pelita II, to what extent has the economic condition of the village community members been improved? (var110).

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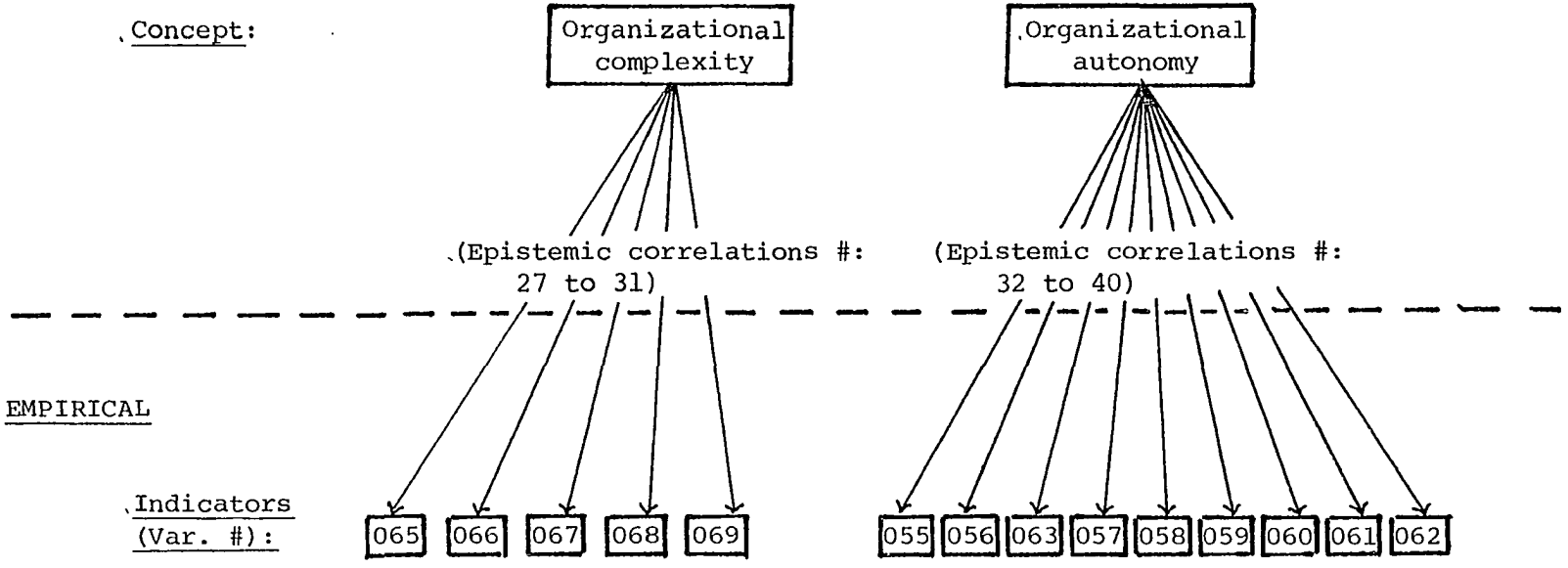

Figure 4. Theoretical-empirical representation of the organizational complexity and organizational autonomy concepts

2. When you compare the Pelita I to the Pelita II, how extensive were the variations in the development activities of this village? (varlll).

3. When you compare the Pelita I to the Pelita II, to what extent has this village contributed financially to the sub-district head office for financing development projects at the sub-district? (varll2).

4. When you compare this village to the neighboring village, to what extent has this village been less developed? (varll3).

The scoring related to the change between the Pelita I and the Pelita II is performed in a manner similar to the ones discussed earlier. The following epistemic correlations relate the concept to its empirical measures.

E.C. 41: Change in the economic condition of the village community members is a measure of environmental complexity.

E.C. 42: Change in the extent of variety in the development activities is a measure of environmental complexity.

E.C. 43: Change in the extent of financial contributions made by the village to finance the sub-district development projects is a measure of environmental complexity.

E.C. 44: The relative less-developedness of one's village to the neighboring villages is a measure of environmental complexity.

Figure 5 summarizes the explication process of the concept environmental complexity.

Resourcefulness refers to the degree of acquisition of physical, social and cultural items that entail at least some utility, and include natural resources, labor, wealth, knowledge, legitimation, coercive power, and any others that could conceivably be used for the attainment of some ends. To measure the concept, the following empirical indicators are

ABSTRACT

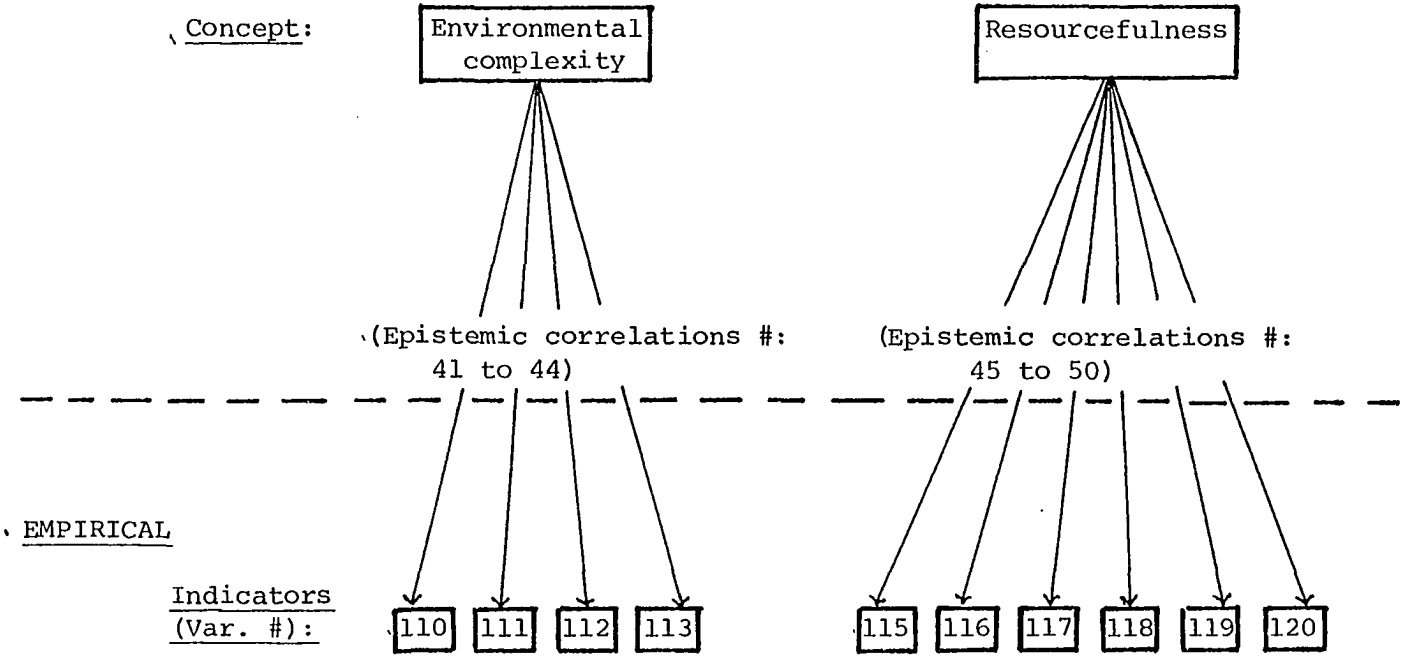

Figure 5. Theoretical-empirical representation of the environmental complexity and resourcefulness concepts

employed.

1. When you compare the Pelita I to the Pelita II, to what extent have members of this village been willing to render their labors for public interests (mutual help) such as building village roads, mosques etc? (var115).

2. When you compare the Pelita I to the Pelita II, to what extent have members of this village been willing to contribute financially for the development of this village? (var116).

3. When you compare the Pelita I to the Pelita II, to what extent have members of this village given suggestions at village assembly meetings? (var117).

4. When you compare the Pelita I to the Pelita II, to what extent were the development facilities such as bank, health care center, hybrid seed center etc. available in this sub-district? (var118).

5. With the increase in the village subsidy from Rp 100,000- to Rp 350,000-,[1] how much time is required to get the money? (var119).

6. To what extent do you feel reluctant to discuss this village's development problems with officials at the sub-district offices? (var120).

As discussed earlier, village development is a joint undertaking between village community and the government. Thereby the selection of indicators pertain to resources in various forms generated from the village community and the support provided by the government. As for the change between the Pelita I and the Pelita II, the scoring is treated in a manner similar to the ones discussed earlier.

The epistemic correlations relating the concept to its indicators are:

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[1] Rp stands for Rupiah, the Indonesian currency. Before November 15, 1978 it has a fixed rate of Rp 415 per US $1.00. At present, the rupiah maintains a floating exchange rate against the dollar.

E.C. 45: Change in the extent of willingness of village community members to render their labor for public interest is a measure of resourcefulness.

E.C. 46: Change in the extent of willingness of village community members to contribute financially for village development is a measure of resourcefulness.

E.C. 47: Change in the extent of suggestions given by community members in the village assembly meetings is a measure of resourcefulness.

E.C. 48: Change in the availability of development facilities at sub-district is a measure of resourcefulness.

E.C. 49: Change in the amount of time needed to obtain the village subsidy fund is a measure of resourcefulness.

E.C. 50: Change in the extent of reluctance to discuss village development problems with sub-district officials is a measure of resourcefulness.

Figure 5 summarizes the explication process of resourcefulness.

Accessibility is defined as the extent of ease to get to the relevant environments of the organization. Empirically, the concept is measured by the following measures:

1. Throughout the year, how difficult is it to get to the village office from hamlets in this village? (var083).

2. Throughout the year, how difficult is it to get to the sub-district head office from this village? (var084).

3. Throughout the year, how difficult is it to get to the Village Unit Bank from this village? (var085).

4. Throughout the year, how difficult is it to get to the health care center from this village? (var086).

5. Throughout the year, how difficult is it to get to the village cooperative from this village? (var087).

The following epistemic correlations link the concept of accessibility to its indicators:

E.C. 51: The difficulty of getting to the village office from the hamlets is a measure of accessibility.

E.C. 52: The difficulty of getting to the sub-district head office from the village is a measure of accessibility.

E.C. 53: The difficulty of getting to the Village Unit Bank from the village is a measure of accessibility.

E.C. 54: The difficulty of getting to the health care center from the village is a measure of accessibility.

E.C. 55: The difficulty of getting to the village cooperative from the village is a measure of accessibility.

Figure 6 presents the summary of the explication process of the concept accessibility.

Finally, the individual determinant of organizational effectiveness is cosmopoliteness. The concept refers to the degree to which an individual's orientation is external to a particular social unit. Cosmopoliteness has three-dimensions, that is, loyalty to organization, commitment to role skills, and reference group orientation. Loyalty to organization refers to the extent of commitment and willingness to remain in the employing organizations, whereas commitment to role skills is defined as the extent of interest one has to continuously advance the knowledge pertaining to tasks regardless of the employing organizations. Reference group orientation is defined as the source from which one seeks recognition and acceptance.

Empirically, each sub-concept is measured by two indicators listed below. The indicators for commitment to role skills are:

1. Beside being ordered by your superior, how much have you acted to improve your skills related to your present tasks? (var034).

ABSTRACT

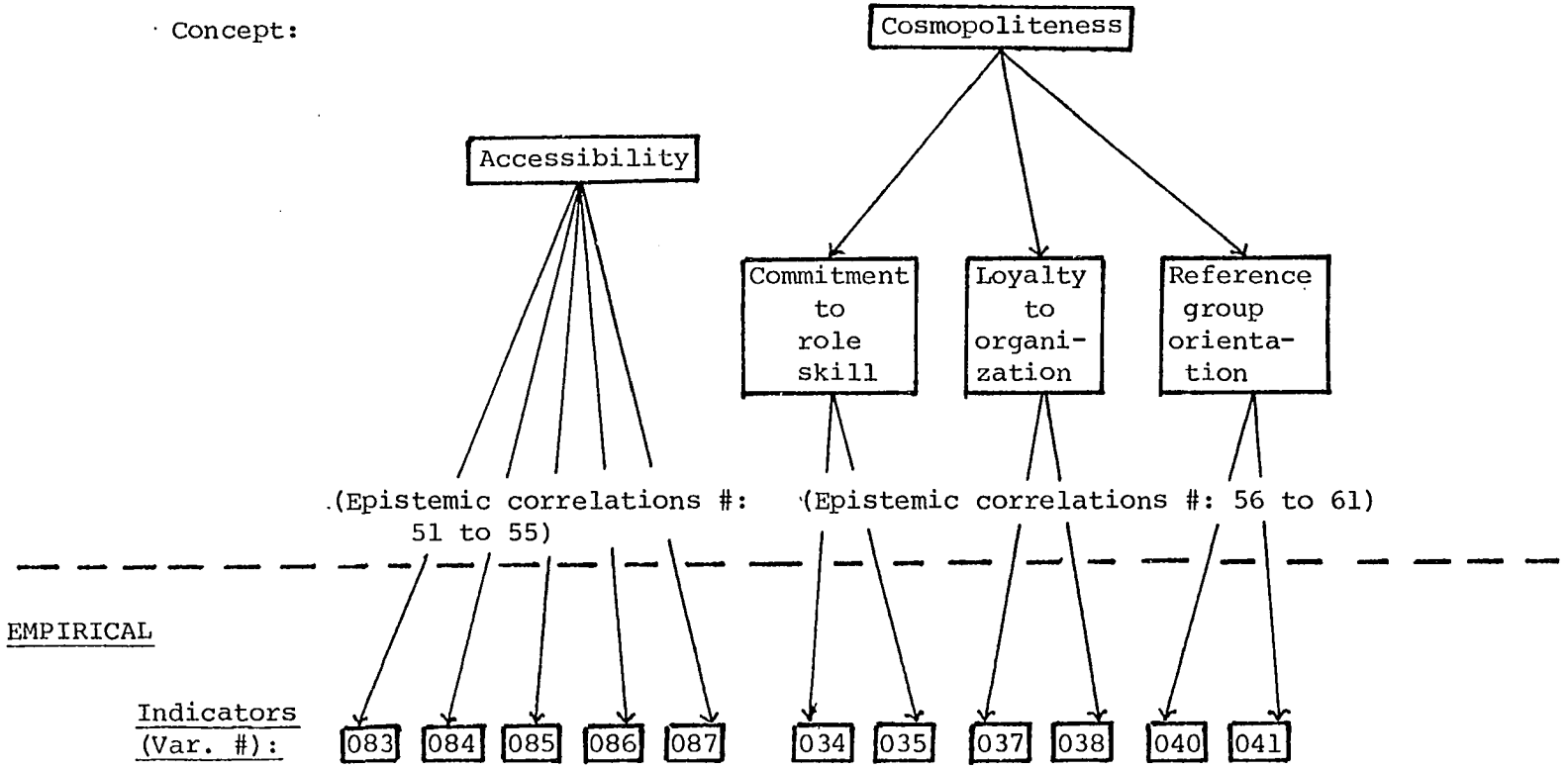

Figure 6. Theoretical-empirical representation of the accessibility and cosmopoliteness concepts

2. Assuming, with the permission of your superior, a school runs a free, short training course related to your present development tasks in this Village Government, would you be interested in taking part in it? (var035).

The loyalty to organization is measured by the following indicators:

1. Assuming, with the permission of the government, there might be a nongovernmental agency offering you a job (which uses your skill) with higher financial reward, would you move to the other job? (var037).

2. Assuming you are given sufficient capital to start a business of your own as your main job, would you move to your own business? (var038).

The reference group orientation is empirically measured as follows:

1. Do you feel that working on another job with better financial rewards in the town is more important than keeping good relations with other officials with whom you work in developing this village? (var040).

2. As you go about day-to-day decision-making related to your tasks in village government, to what extent has seeking advice from community leaders from outside this village been more important than that sought from community leaders within this village? (var041).

The link between the concepts and sub-concepts to their empirical measures is provided by the following epistemic correlations.

E.C. 56: The extent of action taken individually to improve one's skill is a measure of commitment to skill.

E.C. 57: The interest in taking part in a free short training course related to one's present development tasks is a measure of commitment to skill.

E.C. 58: The intention to move to other jobs with higher financial reward is a measure of loyalty to organization.

E.C. 59: The intention to move to one's business if one has sufficient capital is a measure of loyalty to organization.

E.C. 60: The relative importance of taking a job in town with better rewards to keeping the existing social relations at present job is a measure of reference group orientation.

E.C. 61: The relative importance of using extra-village source of advice to intra-village source of advice in making one's day-to-day decision-making related to development tasks is a measure of reference group orientation.

Figure 6 summarizes the explication process of the concept and its sub-concepts.

Scoring the empirical indicators

Having discussed the empirical indicators and linked them to the concepts by using the epistemic correlations, the present task is to quantify the responses given to the various questions. The quantification of responses follows the certainty method.

The certainty method asks respondents to make two decisions regarding a stimulus: first, a directional judgment in which respondents make a decision with regard to a pair of opposite answers such as great-little or convinced-unconvinced, etc.; second, a certainty judgment in which respondents make a judgment by circling an appropriate number reflecting the degree of certainty in giving a particular directional judgment (Warren, Klonglan, and Sabri, 1969).

In actuality, the responses were recorded in a format of a pair of opposite answers with five certainty numbers as described below:

A

1 2 3 4 5

Not A

By circling 1 the respondent shows a quite uncertain feeling or that he has strong reservations about the chosen directional judgment, whereas number 5 shows that the respondent feels quite certain or has no reservations about the choice. Number 2, 3, and 4 reflect the degree of certainty between the two extremes. If the respondent is totally uncertain, he or she is asked to circle both the directional answers.

Having adopted the response format discussed above, the certainty method provides an eleven point continuum, and the scoring procedure assigns larger values to the end points. As Warren and colleagues (1969, p. 9) states:

> The assignment of numerical values, when using the certainty method does not assume equal intervals between the response values.

They further write:

> When a person chooses a point he is indicating the probability for the mean of the normal deviate that lies in the interval represented by the point selected (p. 10).

With this in mind, the scoring procedure appears to be as follows:

Response:	Not A 5	Not A 4	Not A 3	Not A 2	Not A 1	Not A A	A 1	A 2	A 3	A 4	A 5
Numerical Value:	-8	-5	-3	-2	-1	0	1	2	3	5	8
Transformed Value:	0	3	5	6	7	8	9	10	11	13	16

To avoid the use of negative values, the numerical values are transformed to positive values by adding a constant 8 to each numerical value. This results in the transformed values indicated above.

As indicated earlier, some programs are weighted because of the differences in the extent of impact on village community. Thereby, the weighted transformed value is equal to the transformed value times the weight.

It must also be pointed out that the responses are the opinion of individual VICHA officials. Since organization is the unit of analysis, the organizational score is obtained as the mean of individual officials' scores for each indicator in each VICHA researched. Appendix C details the scoring for each indicator.

As a final note for this section it is worth mentioning the two reasons for the adoption of the certainty method scoring procedure. First, by comparing the outcomes of the three scoring methods, that is, a three point continuum, the eleven point continuum, and the certainty method, Warren, Klonglan, and Sabri (1969) find that "the certainty method tends to produce better results in general than the other scoring method" (p. 37). Second, the certainty method tends also to answer many of the questions regarding measurement errors and sensitivity of the test in sociological research (Warren, Klonglan, and Sabri, 1969, p. 36).

Having discussed the scoring procedure, the next section deals with some descriptive statistics of the empirical indicators. The statistics primarily show the nature of the indicators employed in this present study.

Selected descriptive statistics of the empirical indicators

To obtain insights into the nature of the empirical indicators this section presents a set of selected descriptive statistics. This includes the mean, standard deviation and range of the observed values for each indicator.

Following the discussion presented before, it is clear that indicators measuring output goal achievement have various theoretical or possible ranges depending on the weights. Theoretically variables 091 to 094 have the range of scores between 0 to 80. In actuality, the ranges are 62, 57, 50, and 62, respectively, as shown in Table A1. The examination of the means and standard deviations show that values for var091 and 092 are more dispersed when compared to var093 and var094.

Variables 098, 100 and 101 have the range of scores between 0 to 64. In actuality, the ranges are 57, 44, and 45, respectively. The means and standard deviations show that values for variable 098 are more dispersed when compared to both variables 100 and 101.

Variables 097 and 099 are weighted 3, thus giving the theoretical range of 48. Table A1 shows that the actual ranges for var097 and var099 are 30 and 35, respectively. Var099 shows greater mean value and the observed values are more dispersed when compared to var097.

The theoretical ranges for variables 095 and 096 are 32 and 16, respectively. In actuality, var095 has the range of 23 whereas var096 has the range of 11. Slightly over two-thirds of the observed values are within the $\pm$ 4.510 of the mean of 19.008 for var095 and $\pm$ 2.209 of the mean of 8.516 for var096.

Table A2 presents the nature of empirical indicators for adaptiveness. Theoretically var103 has the possible range of 80. The table shows that the actual score range is 64. With the mean of 45.570, slightly over two-thirds of the observed values are within the ± 10.463 of the mean.

Variables 106 and 107 have the possible range of a score of 64, whereas the actual ranges are 40 and 48, respectively. With a smaller mean value and greater standard deviation, var107 has more dispersed observed values when compared to the var106.

Theoretically, variable 104 has the range of a score of 48. However, the table shows that the range is 34. With the mean value of 28.508, 68.26 percent of the observed values are within ± 6.533 of the mean. Variables 108 and 105 have the possible range of scores of 32 and 16, respectively. In actuality, var108 has the range of 26, whereas var105 has the range of 10. With the mean of 16.500, about two-thirds of the observed values of var108 are within the ± 5.487 of the mean. The mean of var105 is 8.836 and the standard deviation is 1.839.

Table A3 shows the descriptive statistics for leadership innovativeness. All the seven empirical indicators have a possible range of scores of 16. However the table indicates that var044 and var048 have a range of 15 and 10, respectively; var 046 and var047 have the actual range of 14 and 13, respectively. Variables 045, 049 and 051 have the actual range of 13, 11, and 10, respectively. Examining the means and standard deviations shows that both var044 and var048 have comparable dispersion from the mean. However, the mean of var048 is greater than of var044. The dispersion of observed values from the means is also comparable for both var046

var047 whereas the two means do not differ greatly.

The standard deviations of both var045 and var049 are quite comparable eventhough the means differ greatly. Compared to var051, the observed values of both var045 and var049 are now dispersed from the means. The mean of var051 shows a value between the ones for var045 and var049.

The descriptive statistics for empirical indicators measuring centralization are presented in Table A4. Theoretically, var071 has a range of scores between 0 and 16. In actuality, the range is 10. With the mean value of 4.859, slightly over two-thirds of the observed are within $\pm$ 1.787 of the mean. Variables 072 to 078 have the theoretical range of 16. The actual range for vars072, 073, 075, and 078 is 9; for vars074 and 077 it is 8, whereas for var076 it is 11. The means for variables 072, 074 and 078 are quite comparable, having slightly over 4. The means for variables 073 and 075 are both over 5 whereas for var077 it is slightly over 6. The biggest mean, 13.852, belongs to var076. The standard deviations for var072 and var073 are slightly over 1.8, whereas for var074 it is 1.572. Vars076, 077 and 078 have the standard deviations of slightly over 1.9. Variable 075 has the biggest standard deviation, 2.043.

All the empirical indicators measuring organizational complexity have the theoretical range of 16. Having the value of 14, var065 shows the greatest actual range as compared to var066 and var067 which have a similar actual range of 13. Variables 068 and 069 have a range of 10 each. Variable 065 has the smallest mean value followed by var069, whereas the other three indicators have comparably greater mean values. However, the standard deviations show that var065 and var067 have more dispersed

observed values compared to the other indicators (Table A5).

Table A6 shows the statistics for empirical indicators of organizational autonomy. Each variable has the theoretical range of 16. The table shows that the actual range of var058 and var059 is 15. Variables 056 and 063 have a range of 14, whereas variables 061 and 059 is 15. Variables 056 and 063 have a range of 14, whereas var061 has a range of 13. Variables 062 and 060 have an actual range of 11 and 10, respectively. Variable 057 has a range of 9, whereas var055 has only 7. The mean values show great differences in which var055 has the smallest mean value, 2.125, and var058 has the greatest, 7.531. Variables 063, 058, 059 and 061 have more dispersed observed values when compared to the remainder of the indicators.

The four empirical indicators of environmental complexity have a theoretical range of 16. Table A7 shows that both var110 and var111 have the actual range of 14, whereas var113 and var112 have a range of 11 and 9, respectively. Variable 113 has the greatest mean value of 10.219 and var112 shows the smallest mean value of 8.344. Both have observed values that are less dispersed as compared to both variables 110 and 111 which have comparable mean value.

Table A8 presents the descriptive statistics for empirical indicators of resourcefulness. Each of the six indicators has a possible range of scores of 16. The table shows, however, that the actual range for var115 and var116 is 13, and for var118 is 12. Both var117 and var119 have the range of 9, whereas var120 has the smallest range of 8. Having the relatively smallest mean values in the set, var115 and var116 have observed

values that are more dispersed. This is also true for var118 except that it has a greater mean value of 10.203. With a smaller mean value, var117 shows less dispersed observed values from the mean, that is $\pm$ 1.856. A similar situation applies to var119 and var120 except that both have relatively greater mean values of 11.734 and 12.547 respectively.

Theoretically the range for each indicator of accessibility is 16. Table A9 shows that variables 084, 085, 086 and 087 have the actual range of 16, whereas var083 has only 10. With a greater mean value, var083 has less dispersed observed values from the mean as compared to the remainder of the indicators which have smaller mean values.

The empirical indicators for cosmopoliteness have a possible range of scores of 16. Variable 034 and variable 035 that measure sub-concept commitment to role skill have the actual ranges of 10 and 9, respectively. Variables 037 and 038 that measure sub-concept loyalty to other organizations have the actual ranges of 14 and 13, respectively, whereas var040 and var041 have the actual ranges of 11 and 10, respectively. Both var034 and var035 show greater mean values but with less dispersed observed values. The remainder of the indicators show smaller mean value but with more dispersed observed values.

Having looked into the nature of each empirical indicator, the section below examines the reliability and validity of the measures.

Reliability and Validity of Measures

The previous sections show that this present study employs multiple indicators to measure each concept. The adoption of a multiple indicator approach stems from the finding of Jacobson and Lalu (1974) which shows that the approach generally yields the best parameter estimates. Nevertheless, any research based on measurement must be concerned with the accuracy or dependability of measurement. At this point it is not yet known which of the empirical indicators employed are adequate as a measure. Therefore, Dubin (1969) specifies reliability as the second criterion of the adequacy of an empirical indicator.

The reliability of the empirical indicators are estimated using Cronbach's Alpha, that is, the mean of all possible split-half coefficients resulting from the same test (Cronbach, 1951). The definitional formula for Cronbach's Alpha is given by Bohrnstedt (1969) as follows:

$$\alpha = \frac{k}{k-1}\left[1 - \frac{\sum_{i=1}^{k} \sigma_i^2}{\sum_{i=1}^{k} \sigma_i^2 + 2\sum\sum_{i<j} C\,(V_i, V_j)}\right]$$

where k is the number of items in one's composite measures, whereas the right-hand fraction directs one to sum the elements in the diagonal of the covariance matrix (i.e., the variances) and to divide that sum by that same sum plus twice the sum of the off-diagonal elements in the covariance matrix.

Beside looking at coefficient alpha, further examination of each

item is also necessary. Hence, one needs to consider other statistics such as the alpha coefficient if an item is deleted and the correlation matrix. An item is adequate as a measure if its deletion causes the coefficient alpha to decrease, and vice versa.

Campbell and Fiske (1959) state that indicators measuring the same concept must also have a higher inter-item correlation coefficient. Therefore, on the basis of the magnitude of the Cronbach Alpha, the coefficient alpha if the item is deleted, and the inter-item correlation coefficient, the adequacy of indicators are determined.

In addition to examining the reliability, one needs also to look into the validity of measures. Campbell and Fiske (1959, p. 83) define validity as "the agreement between two attempts to measure the same trait through maximally different methods", or as Kerlinger (1973, p. 457) put it, "are we measuring what we think we are measuring?".

Although there are different ways of examining the validity of measures, the present study adopts the corrected item-total technique (Bohrnstedt, 1969). In using this technique the total score is assumed to be valid. To the extent that an item measures the same thing as the total score does, to that extent the item is valid (Kerlinger, 1973). Nevertheless, Bohrnstedt (1969) reminds that the total score is contaminated by the item itself. Thus, one needs to look at the item-to-total correlation with the item removed from the total score.

There are two reasons for adopting the corrected item-total correlation technique. First, since the present study is one of the initial steps toward examining organizational effectiveness in a nonwestern developing

country, it faces the lack of criterion validity. Bohrnstedt (1969, p. 543) states that "where no outside criteria are available, the total score itself can be used as a criterion". The second reason is that the corrected item-total correlation can also be used for examining the reliability of measures and it is also presented as one of the statistics in the reliability sub-program of the SPSS (Nie and Hull, 1977).

On the basis of the above discussions, the reliability and validity of measures are examined together by looking into the magnitudes of coefficient alpha, alpha if item-deleted, corrected item-total correlation, and the inter-item correlation matrix. These statistics are presented in Appendix A, Tables A11 through A30.

Except for the indicators of leadership innovativeness, organizational complexity, and environmental complexity, the coefficient alpha is sufficiently high. Nevertheless further examination of other statistics in Tables A11 through A30 suggests the need for deleting some of the indicators. Therefore, the indicators for each concept and sub-concept are examined in greater detail.

As shown in Tables A11 and A21, variables 093, 096, 099, 100, and 101 not only cause the coefficient alpha to increase if each is deleted, but also they have relatively low inter-item correlation coefficients and some even correlate negatively with other items. These indicators show low item-total correlation coefficients. Therefore, these indicators are inadequate as measures of output goal achievement.

Further examination of the remaining indicators reveals that coefficient alpha increases from 0.79949 to 0.86164. The coefficient alpha if item-deleted as presented in Table A11, the inter-item correlation and

the corrected item-total correlation show that var091, var029, var094, var095, var097 and var098 can be retained as adequate measures.

Tables A12 and A22 indicate that variables 105, 107 and 108 are inadequate as measures of adaptiveness, hence must be deleted. Further investigation of the remaining indicators reveals that coefficient alpha increases from 0.70507 to 0.81690. The coefficient alpha if item-deleted presented in the Table A12, the inter-item correlation and the corrected item-total correlation show that var103, var104 and var106 are relatively adequate measures.

The statistics in Tables A13 and A23 show that variables 044, 046, 049 and 051 measuring leadership innovativeness must be deleted because they do not fulfill the requirements for adequate measures. The statistics for the remaining indicators reveal that after the deletion, coefficient alpha considerably increases from 0.06763 to 0.56520, and also leads to further elimination of var045. Thus, only two empirical indicators of leadership innovativeness remain, that is, var047 and var048.

Tables A14 and A24 indicate that variable 076 is inadequate as a measure of centralization. Its deletion increases the coefficient alpha from 0.73171 to 0.85720. The coefficient alpha if item-deleted, the inter-item correlation and the item-total correlation coefficients of the remaining indicators show that var071 through 075 and var077 and var078 can be retained as indicators of centralization.

Organizational complexity is measured by variables 065 to 069. Tables A15 and A25 reveal that var068 and var069 are inadequate as measures. Their deletion increases the coefficient alpha from 0.46721 to

0.58738. Further investigation suggests the deletion of var065. Thus, there are only two empirical indicators remaining, var066 and var067, to measure organizational complexity.

There are nine empirical measures of organizational autonomy. Tables A16 and A26 suggest, however, that var055, 056, 057, 062 and 063 must be eliminated because their deletion increases alpha and some of the items are negatively correlated to others. As Table A16 reveals, the deletion of the variables increases alpha from 0.69038 to 0.82100. Furthermore, the table also suggests that var060 is not as good a measure as it appears to be. Therefore, only three variables remain, var058, var059, and var061, to measure organizational autonomy.

Tables A17 and A27 provide relevant statistics for considering measures of environmental complexity. The tables show that variables 112 and 113 are inadequate as a measure. Their deletion leads the coefficient alpha to increase from 0.42659 to 0.81510. The two remaining indicators, variables 110 and 111, have sufficiently high corrected item-total correlation coefficients.

Resourcefulness is measured by six empirical indicators, variables 115 to 120. However, statistics in Tables A18 and A28 suggest that variables 117, 119 and 120 are not good measures. The examination of remaining indicators show that coefficient alpha increases from 0.69801 to 0.82552 and also leads to further deletion of variable 118. Thus, the remaining indicators are variables 115 and 116.

The five empirical indicators measuring accessibility are variables

083 to 087. Tables A19 and A29 reveal that except for var083, the rest of the measures are adequate. The deletion of var083 slightly increases the coefficient alpha from 0.94162 to 0.97870, whereas the inter-item correlation and the corrected item-total correlation coefficients are very high.

Finally, there are six indicators measuring cosmopoliteness, two for each of the three sub-concepts. Examining the pairs separately reveals that variables 034 and 035 measuring the sub-concept commitment to role skill have the reliability coefficient of 0.60323, whereas the corrected item-total correlation as well as the inter-item correlation is 0.43570 which is relatively low. The pair that measures the sub-concept loyalty to organization, var038 and var038, has a coefficient alpha of 0.80590, whereas the corrected item-total correlation as well as inter-item correlation is 0.67540.

The pair measuring reference group orientation, var040 and var041, have a coefficient alpha of 0.72562 and the corrected item-total correlation as well as the inter-item correlation of 0.57000. If all the six indicators are treated as one set, the alpha is only 0.59938. Tables A20 and A30 also reveal that variables 034 and 035 have the lowest and negative corrected item-total correlation coefficient. The deletion of these two indicators leads to the increase in alpha. These two variables are also negatively correlated to the other four variables.

Moreover, with the elimination of var034 and var035 the coefficient alpha increases from 0.59938 to 0.78897. Therefore, there are only four variables remaining, that is, variables 037, 038, 040 and 041. The first

pair measures loyalty to organization, whereas the second pair measures reference group orientation.

At this point the remaining empirical indicators are reliable and valid for measuring the concepts. Nevertheless, because of the deletion of some indicators, there is one sub-concept that remains unmeasured, that is, commitment to role skill. The implication is that in formulating the empirical hypotheses the unmeasured sub-concept have to be excluded.

Beside having adequate measures, Sullivan (1974) put an additional criterion in selecting the indicators. He suggests that there must be an equal number of indicators per concept. Therefore, to meet this requirement, effort was made to equalize the number of indicators measuring each concept. Table 1 shows the concepts, sub-concepts and their retained empirical indicators used for testing the propositions. All the concepts and sub-concepts have two or more measures. To follow Sullivan's suggestion, therefore, the indicators are randomly assigned into two sub-composites. Since the number of indicators within each sub-composite is also unequal, efforts are made to calculate the average scores of the sub-composites of output goal achievement, adaptiveness, centralization, organizational autonomy, and accessibility. Thus, the average score represents as a single measure of each concept in a particular sub-composite. The reliability coefficients for the unstandardized score range from .58562 to .98009. The reliability coefficients for the standardized score are relatively high and range from .60352 to .98024.

Finally, because of the lack of adequate measures for sub-concept commitment to role skills, the path model in Figure 1 needs to be modified.

Table 1. The retained indicators and their reliability coefficients for the unstandardized and standardized items

Concept[a]	Retained indicator	Sub-composite I	Sub-composite II	Unstandardized item alpha	Standardized item alpha
Opga	091;092;094;095;097 098	091;094;098	092;095;097	.86625	.89298
Adap	103;104;106	103;106	104	.85918	.86583
Ledi	047;048	048	047	.58562	.60352
Cent	071;072;073;074; 075;077;078	072;073;074 077	071;075;078	.85297	.85420
Ocop	066;067	066	067	.82452	.82632
Orau	058;059;061	059;061	058	.77522	.78628
Ecop	110;111	110	111	.81510	.81525
Reso	115;116	115	116	.85778	.85901
Acce	084;085;086;087	084;086	085;087	.98009	.98024
Cosmo:					
Lorg	037;038	037	038	.80590	.80626
Ergo	040;041	040	041	.72562	.72611

[a]Opga = output goal achievement; Adap = adaptiveness; Ledi = leadership innovativeness; Cent = centralization; Ocop = organizational complexity; Orau = organizational autonomy; Ecop = environmental complexity; Reso = resourcefulness; Acce = accessibility; Cosmo = cosmopoliteness; Lorg = loyalty to other organization; Ergo = external reference group orientation.

This is presented in Figure 7.

Empirical and Statistical Hypotheses

Having linked the concepts and sub-concepts to their empirical indicators and having found the adequate measures, this section proceeds to formulating the empirical and statistical hypotheses. Except for several propositions that are excluded from the testing process because of lack of adequate measures for commitment to role skills, the numbering of empirical and statistical hypotheses follows the same order as the propositions stated in Chapter II.

One would have noticed that the propositions follow either "the higher the X, the higher the Y" or "the higher the X, the lower the Y" pattern. Warren, Klonglan, and Faisal (1977) indicates that the empirical hypotheses for the propositions taking this pattern are formed by substituting "measures or indicators for concepts", and that the statistical hypotheses are "Ho:ρ=0 and Ha:$\rho\neq$0" (p. 79). Thus, the empirical hypotheses[1] are as follows.

The empirical hypotheses linking the environmental determinants to the organizational health effectiveness

E.H. 1: The higher the environmental complexity score, the higher the leadership innovativeness score.

E.H. 2: The higher the environmental complexity score, the higher the organizational autonomy score.

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[1]Empirical hypothesis will also hereinafter be indicated as E.H.

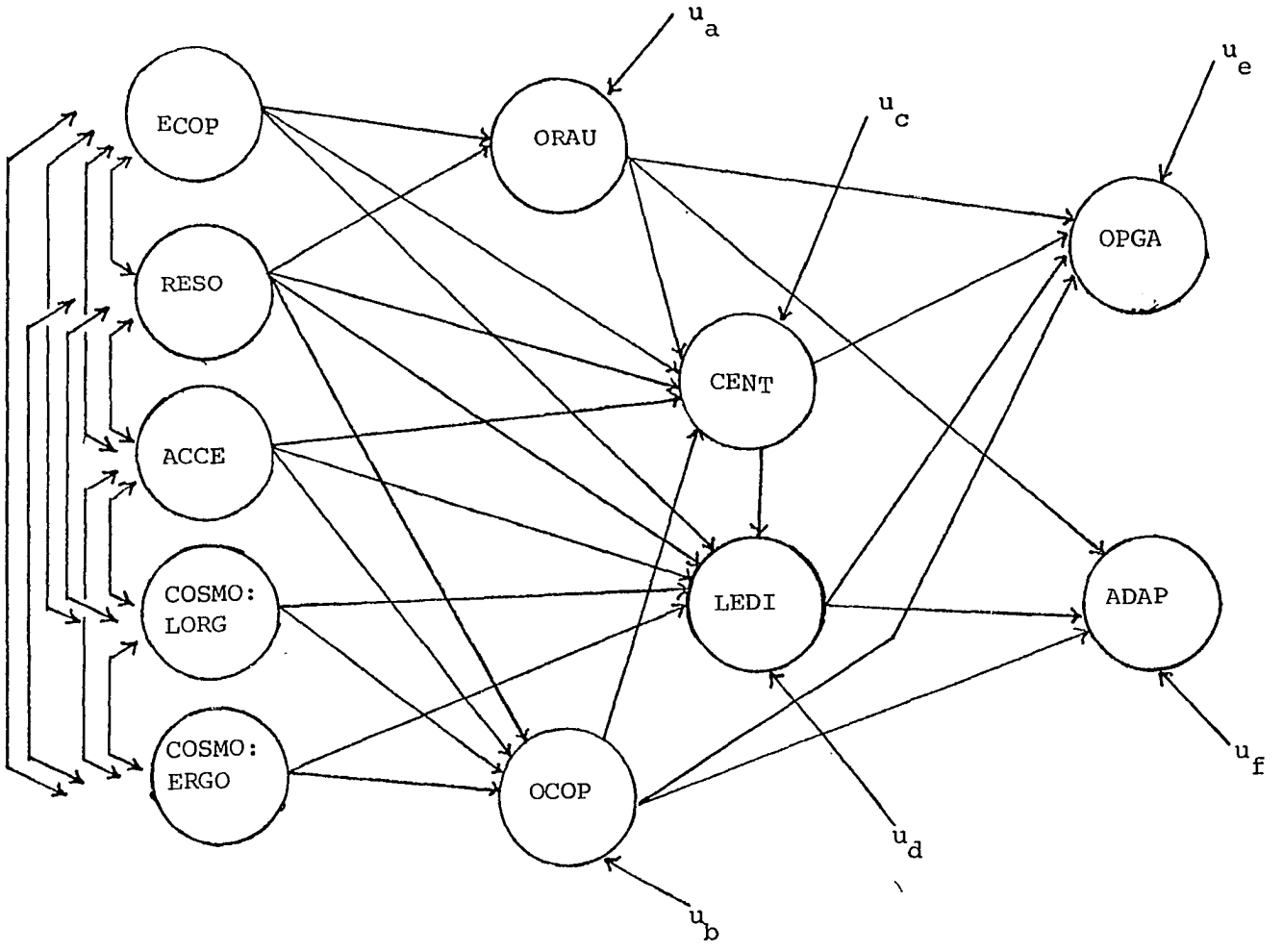

Figure 7. A modified path model of organizational effectiveness

E.H. 3: The higher the environmental complexity score, the lower the centralization score.

E.H. 4: The higher the resourcefulness score, the higher the organizational autonomy score.

E.H. 5: The higher the resourcefulness score, the lower the centralization score.

E.H. 6: The higher the resourcefulness score, the higher the leadership innovativeness score.

E.H. 8: The higher the resourcefulness score, the higher the organizational complexity score.

E.H. 10: The lower the accessibility score, the lower the organizational complexity score.

E.H. 11: The lower the accessibility score, the higher the centralization score.

E.H. 12: The lower the accessibility score, the lower the leadership innovativeness score.

The empirical hypotheses linking the individual determinants to the organizational health effectiveness

E.H. 7: The higher the cosmopoliteness score, the higher the leadership innovativeness score.

E.H. 7.1: The higher the loyalty to other organization score, the higher the leadership innovativeness score.

E.H. 7.3: The higher the external reference group orientation score, the higher the leadership innovativeness score.

E.H. 9: The higher the cosmopoliteness score the higher the organizational complexity score.

E.H. 9.1: The higher the loyalty to other organization score, the higher the organizational complexity score.

E.H. 9.3: The higher the external reference group orientation score, the higher the organizational complexity score.

The empirical hypotheses linking the correlates of organizational health effectiveness

E.H. 13: The higher the organizational autonomy score, the higher the centralization score.

E.H. 18: The higher the organizational complexity score, the lower the centralization score.

E.H. 22: The higher the centralization score, the higher the leadership innovativeness score.

The empirical hypotheses linking the organizational health effectiveness to the organizational productivity effectiveness

E.H. 14: The higher the organizational autonomy score, the higher the output goal achievement score.

E.H. 15: The higher the organizational autonomy score, the higher the adaptiveness score.

E.H. 16: The higher the leadership innovativeness score, the higher the output goal achievement score.

E.H. 17: The higher the leadership innovativeness score, the higher the adaptiveness score.

E.H. 19: The higher the organizational complexity score, the higher the output goal achievement score.

E.H. 20: The higher the organizational complexity score, the higher the adaptiveness score.

E.H. 21: The higher the centralization score, the higher the output goal achievement score.

The resulting statistical hypotheses[1] are as follows:

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[1]Statistical hypothesis will also hereinafter be indicated as S.H.

The statistical hypotheses linking the environmental determinants to the organizational health effectiveness

S.H. 1: $Ho:\rho_{(Ledi,Ecop)} = 0$; $Ha:\rho_{(Ledi,Ecop)} > 0$

S.H. 2: $Ho:\rho_{(Orau,Ecop)} = 0$; $Ha:\rho_{(Orau,Ecop)} > 0$

S.H. 3: $Ho:\rho_{(Cent,Ecop)} = 0$; $Ha:\rho_{(Cent,Ecop)} < 0$

S.H. 4: $Ho:\rho_{(Orau,Reso)} = 0$; $Ha:\rho_{(Orau,Reso)} > 0$

S.H. 5: $Ho:\rho_{(Cent,Reso)} = 0$; $Ha:\rho_{(Cent,Reso)} < 0$

S.H. 6: $Ho:\rho_{(Ledi,Reso)} = 0$; $Ha:\rho_{(Ledi,Reso)} > 0$

S.H. 8: $Ho:\rho_{(Ocop,Reso)} = 0$; $Ha:\rho_{(Ocop,Reso)} > 0$

S.H. 10: $Ho:\rho_{(Ocop,Acce)} = 0$; $Ha:\rho_{(Ocop,\ Acce)} > 0$

S.H. 11: $Ho:\rho_{(Cent,Acce)} = 0$; $Ha:\rho_{(Cent,Acce)} < 0$

S.H. 12: $Ho:\rho_{(Ledi,Acce)} = 0$; $Ha:\rho_{(Ledi,Acce)} > 0$

The statistical hypotheses linking the individual determinants to the organizational health effectiveness

S.H. 7: $Ho:\rho_{(Ledi,\ Cosmo)} = 0$; $Ha:\rho_{(Ledi,\ Cosmo)} > 0$

S.H. 7.1: $Ho:\rho_{(Ledi,\ Lorg)} = 0$; $Ha:\rho_{(Ledi,\ Lorg)} > 0$

S.H. 7.3: $Ho:\rho_{(Ledi,Ergo)} = 0$; $Ha:\rho_{(Ledi,Ergo)} > 0$

S.H. 9: $Ho:\rho_{(Ocop,Cosmo)} = 0$; $Ha:\rho_{(Ocop,Cosmo)} > 0$

S.H. 9.1: $Ho:\rho_{(Ocop,Lorg)} = 0$; $Ha:\rho_{(Ocop,Lorg)} > 0$

S.H. 9.3: $Ho:\rho_{(Ocop,Ergo)} = 0$; $Ha:\rho_{(Ocop,Ergo)} > 0$

The statistical hypotheses linking the correlates of organizational health effectiveness

S.H. 13: $Ho:\rho_{(Cent,Orau)} = 0$; $Ha:\rho_{(Cent,Orau)} > 0$

S.H. 18: $Ho:\rho_{(Cent,Ocop)} = 0$; $Ha:\rho_{(Cent,Ocop)} < 0$

S.H. 22: $Ho:\rho_{(Ledi,Cent)} = 0$; $Ha:\rho_{(Ledi,Cent)} > 0$

The statistical hypotheses linking the organizational health effectiveness to the organizational productivity effectiveness

S.H. 14: $Ho:\rho_{(Opga,Orau)} = 0$; $Ha:\rho_{(Opga,Orau)} > 0$

S.H. 15: $Ho:\rho_{(Adap,Orau)} = 0$; $Ha:\rho_{(Adap,Orau)} > 0$

S.H. 16: $Ho:\rho_{(Opga,Ledi)} = 0$; $Ha:\rho_{(Opga,Ledi)} > 0$

S.H. 17: $Ho:\rho_{(Adap,Ledi)} = 0$; $Ha:\rho_{(Adap,Ledi)} > 0$

S.H. 19: $Ho:\rho_{(Opga,Ocop)} = 0$; $Ha:\rho_{(Opga,Ocop)} > 0$

S.H. 20: $Ho:\rho_{(Adap,Ocop)} = 0$; $Ha:\rho_{(Adap,Ocop)} > 0$

S.H. 21: $Ho:\rho_{(Opga,Cent)} = 0$; $Ha:\rho_{(Opga,Cent)} > 0$

Statistical Procedures

As discussed earlier, the study attempts to test the propositions and to provide a framework for predicting the organizational effectiveness. The task of making a prediction requires that certain statistical procedures be followed which calls for the interval level of measurement. Unfortunately, aside from areas such as stratification, mobility and demography where equal interval assumptions are familiar, sociological variables are measured at the nominal and ordinal levels of measurement. Therefore, for some years there has been a strong tradition in sociology emphasizing the scientific purity of nonparametric statistics.

Since the data for this present study were measured with the certainty method which assumes an unequal interval, it raises a question of whether statistical techniques which assume interval or ratio level of measurement can be used in the analyses.

The response to this particular kind of question is provided by Blalock (1974, p. 424) who writes:

> I believe it would be a serious mistake for social scientists to rest content with ordinal techniques and with measurement procedures that yield, at best, ordinal scales. We should always strive to improve our measurements and to achieve ordered metric, interval, or ratio scales wherever possible.

Blalock concedes that there are difficulties in these efforts, but also points out two approaches that can be followed: (1) to collect the data in such a way that one can infer metric properties from response patterns and thereby construct either ordered-metric or crude interval scales from the data, (2) to attempt ratio-scale measurement. The

use of the certainty method seems to fall into the first approach. Warren and colleagues state:

> The scoring procedure of the certainty method is one of its most promising parts. This comes from transforming the scores from a simple one step numerical increase (i.e., the 1, 2, 3, 4, 5 of the Likert system) to a score expressed in terms of normalized ranks or normal deviates. This is essentially a means of giving greater weight to the more extreme responses, which may be more indicative of the real presence of the variable being measured (1969, p. 36).

Boyle (1971) provides another basis for using the parametric statistics in the absence of interval data. After empirically testing the consequences for path analysis by using ordinal data, Boyle concluded that "regression and path coefficients are generally quite stable no matter what the interval scale, because appreciable distortion depends not on the magnitude of error, but on special coincidences between more than one kind of error" (1971, p. 451). Bohrnstedt and Carter suggest that "when one has a variable which is measured at least at the ordinal level, parametric statistics not only can be, but should be, applied" (1971, p. 132). They further indicate, though, that estimates should include adjustment to correct for error in measurement. With the above discussions in mind, the following statistical techniques were employed for analyzing the data.

Bivariate correlation procedure

The bivariate correlation procedure examines the amount of covariation between two concepts without stating which of the concepts is causal to the other. The correlation coefficient reflects the degree

or strength of the relationship between the two concepts or variables (Blalock, 1960; Nan Lin, 1976). The definitional formula is as follows:

$$r_{xy} = \frac{\text{Covariance } xy}{(\text{Std. dev. of } x)(\text{std. dev. of } y)}$$

In the presence of measurement errors in the bivariate case, the correlation between two fallible measures will generally be less than the correlation between the two true values of the variables providing that the errors of measurements are uncorrelated. In other words, the relationship between variables are attenuated and therefore the relationship should be corrected for attenuation (Guilford, 1939).

Since the concepts in this present study are being measured using composites of the empirical indicators, the definitional formula for the correction for attenuation was

$$r_{XY} \frac{r_{xy}}{\sqrt{r_{xx}}\sqrt{r_{yy}}}$$

where

r_{XY} = correlation between true values

r_{xy} = correlation between observed values

r_{xx} = reliability of composite measuring X

r_{yy} = reliability of composite measuring Y

The test of significance of correlation coefficient was performed using the t-test. The calculated t-values for the corrected correlation coefficients were obtained through the simple regression using the error-in-variable procedure. The definitional formula to calculate the t-values for the uncorrected correlation coefficients is:

$$t = r\sqrt{\frac{n-2}{1-r^2}}$$

Path analysis

In addition to correlation, the path analysis was also performed. The analysis dealt primarily with decomposing and interpreting linear relationships among a set of variables. It is a method for studying the direct and indirect effects of variables taken as causes of variables taken as effect (Kim and Kohout, 1975; Kerlinger and Pedhazur, 1973). This technique is employed for testing the model for predicting organizational effectiveness presented in Figure 7. To achieve this goal, the standardized coefficients, usually called path coefficients, was employed and their significance was examined by using the t-test.

The modified path model in the Figure 7 calls for the solution of the following regressions:

(1) regression Orau on Ecop and Reso

(2) regression Ocop on Reso, Acce, Lorg, and Ergo

(3) regression Cent on Ecop, Reso, Acce, Orau, and Ocop

(4) regression Ledi on Ecop, Reso, Acce, Lorg, Ergo, and Cent

(5) regression Opga on Orau, Ocop, Cent, Ledi

(6) regression Adap on Orau, Ocop, Ledi

Following Alwin and Hauser (1975), the decomposition of effects was made into direct and indirect components.

In the bivariate case one does know that underestimation prevails due to measurement error, hence one simply needs to correct for attenuation. The path model suggested in this present study involves a multivariate case in which one does not know whether overestimation or

underestimation prevails. Since the correction for attenuation cannot deal with rather complicated error, this study turns to the error-in-variables (EIV) procedure for help. The EIV procedure has some advantages, that is, it is more robust, meaning less affected by assumptions violations; it also takes into account both the measurement and specification errors. Moreover, the procedure provides tests for singularity of the variance-covariance matrix for the independent variables and for the significance of corrected $\tilde{\beta}$'s by using $t = \tilde{\beta}_i / S_{\tilde{\beta}_i}$. Finally, the procedure also allows the decomposition of the observed variance into measurement error variance, explained variance, and unexplained or specification error variance (Faisal and Warren, 1978a).

In conclusion it must be pointed out that in using the Super Carp program or EIV procedure the analyses were based on the total composites of the standardized scores. The use of the standardized scores was intended to eliminate the effects of rather substantial differences in the variances of some empirical measures. Table B5 in Appendix B shows the calculation of the standardized item scores and the total composites.

With the statistical procedures discussed above the hypotheses were tested and the model examined. The findings will be presented in Chapter IV.

CHAPTER IV. FINDINGS AND DISCUSSION

This chapter aims at presenting and discussing the results of the bivariate and path analyses. First, the results of bivariate analysis will be presented. This is followed by the findings of path analysis. The chapter will end with a discussion about the findings.

The Results of the Bivariate Analysis

The presentation of the results of the bivariate analysis includes the outcomes of correction for attenuation, the covariations between the environmental determinants and the organizational health effectiveness, between the individual determinants and the organizational health effectiveness, between the correlates of the organizational health effectiveness, and between the organizational health effectiveness and the organizational productivity effectiveness. Finally, the results of hypothesis testing will be dealt with.

The outcomes of correction for attenuation

The correction for attenuation aims at obtaining the correlation between the true scores of the two variables. Table 2 shows the uncorrected and the corrected correlation coefficients of the hypothesized covariations. The table shows that the corrected r-values have been improved after making the correction for attenuation. Some of the r-values even have increased considerably, particularly the correlations between organizational autonomy and resourcefulness; between leadership

Table 2. Matrix of the uncorrected (below diagonal) and corrected (above diagonal) correlation coefficients of the hypothesized linear relationships[a]

	Ecop	Reso	Acce	Lorg	Ergo	Orau	Ocop	Cent	Ledi	Opga	Adap
Ecop	1.0000	-	-	-	-	-.82094	-	-.19219	-.11169	-	-
Reso	-	1.0000	-	-	-	-.75553	.32284	-.24991	-.04860	-	-
Acce	-	-	1.0000	-	-	-	.09653	-.19790	.57001		
Lorg	-	-	-	1.0000	-	-	-.27275	-	-.22641	-	-
Ergo	-	-	-	-	1.0000	-	-.32428	-	-.22121	-	-
Orau	-.65728	-.62093	-	-	-	1.0000	-	.16911	-	-.86037	-.80737
Ocop	-	.27200	.08688	-.22263	-.25119	-	1.0000	-.48521	-	.29257	.12139
Cent	-.16039	-.21408	-.18109	-	-	.13860	-.40765	1.0000	-.68353	-.23406	-
Ledi	-.07835	-.03500	.43843	-.15794	-.14644	-	-	-.49078	1.0000	-.08728	.15434
Opga	-	-	-	-	-	-.72094	.25132	-.20443	-.06408	1.0000	-
Adap	-	-	-	-	-	-.66616	.10268	-	.11157	-	1.0000

[a]Ecop = environmental complexity, Reso = resourcefulness, Acce = accessibility, Lorg = loyalty to other organization, Ergo = external reference group orientation, Orau = organizational autonomy, Ocop = organizational complexity, Cent = centralization, Ledi = leadership innovativeness, Opga = output goal achievement, Adap = adaptiveness.

innovativeness and accessibility; between output goal achievement and organizational autonomy; between adaptiveness and organizational autonomy; and between leadership innovativeness and centralization. After making the correction for the measurement error, the correlation coefficients of the said bivariate relationships have been increased with a value ranging from .13 to .19. This indicates that after removing the measurement error, the true score of the variables involved correlate even stronger. This further suggests that the hypothesized covariations do reflect the existence of such relationships in the real world.

The covariation between the environmental determinants and the organizational health effectiveness

The covariations between the environmental determinants and the organizational health effectiveness is shown in Table 3. The table shows that out of ten hypothesized covariations, seven are significant. Using the corrected r-values, the correlation between environmental complexity and organizational autonomy scores is -0.82094, whereas the corrected correlation coefficient between resourcefulness and organizational autonomy scores is -0.75553. Both coefficients are significant at the .0005 level. The coefficient of correlation between the resourcefulness score and the organizational complexity score is 0.32284, significant at the .025 level. All the three environmental determinants scores environmental complexity, resourcefulness and accessibility significantly correlate with centralization and have the coefficients of -0.19219, -0.24991 and -0.19790, respectively. The second and the last coefficients are significant at the .025 level, whereas the remaining coefficient is at the .10

Table 3. The uncorrected and corrected coefficients of correlation between the environmental determinants and the organizational health effectiveness[a]

	Ecop	Reso	Acce
Orau	-.65728******	-.62093******	-
	(-.82094)******	(-.75553)******	-
Ocop	-	.27200*****	.08688
	-	(.32284)***	(.09653)
Cent	-.16039**	-.21408****	-.18109***
	(-.19219)*	(-.24991)***	(-.19790)***
Ledi	-.07835	-.03500	.43843******
	(-.11169)	(-.04860)	(.57001)******

[a]Figures in parentheses indicate corrected r-values.

*Takes t = 1.28 at .10 level of significance for one-tailed test.

**Takes t = 1.64 at .05 level of significance for one-tailed test.

***Takes t = 1.96 at .025 level of significance for one-tailed test.

****Takes t = 2.32 at .01 level of significance for one-tailed test.

*****Takes t = 2.57 at .005 level of significance for one-tailed test.

******Takes t = 3.29 at .0005 level of significance for one-tailed test.

Table 4. The uncorrected and corrected coefficients of correlation between the individual determinants and the organizational health effectiveness[a]

	Lorg	Ergo
Ocop	-.22263****	-.25119*****
	(-.27275)*****	(-.32428)*****
Ledi	-.15794**	-.14644**
	(-.22641)*	(-.22121)**

[a]Figures in parentheses indicate corrected correlation coefficients.

*Takes t = 1.28 at .10 level of significance for one-tailed test.

**Takes t = 1.64 at .05 level of significance for one-tailed test.

****Takes t = 2.32 at .01 level of significance for one-tailed test.

*****Takes t = 2.57 at .005 level of signififance for one-tailed test.

level of significance. The table shows that only the accessibility score significantly correlates with the leadership innovativeness score. The corrected coefficient is 0.57001, significant at the .0005 level. The three nonsignificant coefficients are the correlations between the leadership innovativeness score with the environmental complexity and resourcefulness scores, and between the accessibility score and organizational complexity score. The table also shows that the environmental determinants i.e., environmental complexity and resourcefulness, are strongly related to organizational autonomy. Resourcefulness and organizational complexity and centralization, and accessibility and leadership innovativeness are moderately related. Environmental complexity and centralization, and accessibility and centralization are weakly related.

The covariation between the individual determinants and the organizational health effectiveness

Table 4 shows the covariations between the individual determinants and the organizational health effectiveness. All four correlation coefficients are significant. The corrected coefficients of correlation between organizational complexity and the two individual determinants, i.e., loyalty to other organization and external reference group orientation, are -.27275 and -.32428, respectively. Both coefficients are significant at the .005 level. The corrected coefficients of correlation between leadership innovativeness and the two individual determinants are -.22641 and -.22121. The first coefficient is significant at the .10 level, the latter at .05. The table shows that the two individual determinants are moderately correlated with organiza-

tional complexity whereas the correlations with leadership innovativeness are relatively weak.

The covariation between the correlates of organizational health effectiveness

Table 5 indicates that all three organizational health effectiveness correlates have significance correlation coefficients. The centralization score correlates with the organizational autonomy score with a coefficient of 0.16911 significant at the .10 level; with the organizational complexity score with a coefficient of -.48521 significant at .005; and with leadership innovativeness with a coefficient of -.68353 significant at the .0005 level. Further examination of the table show that centralization correlates quite strongly with leadership innovativeness, but has only moderate correlation with organizational complexity. Centralization is weakly related to organizational autonomy.

Table 5. The uncorrected and corrected coefficients of correlation between the correlates of organizational health effectiveness[a]

	Orau	Ocop	Cent
Cent	.13860*	-.40765******	
	(.16911)*	(-.48521)*****	
Ledi			-.49078******
			(-.68353)******

[a]The figures in the parentheses indicate the corrected correlation coefficients.

*Takes t = 1.28 at .10 level of significance for one-tailed test.

*****Takes t = 2.57 at .005 level of significance for one-tailed test.

******Takes t = 3.29 at .0005 level of significance for one-tailed test.

The covariation between the organizational health effectiveness and the organizational productivity effectiveness

Finally, Table 6 shows the covariations between the organizational health effectiveness and the organizational productivity effectiveness. Out of seven coefficients, only the correlation between the leadership innovativeness score and the output goal achievement score and between organizational complexity score and adaptiveness score are not significant. The output goal achievement is significantly correlated with the organizational autonomy, organizational complexity and centralization scores. The coefficients are -.86037, .29257 and -.23406, respectively. The first coefficient is significant at the .0005 level, the second at .025 and the third at .01 level.

The adaptiveness score is significantly correlated with the organizational autonomy and leadership innovativeness scores. The coefficients

Table 6. The uncorrected and corrected coefficients of correlation between organizational health effectiveness and organizational productivity effectiveness[a]

	Orau	Ocop	Cent	Ledi
Opga	-.72094******	.25132*****	-.20443****	-.06408
	(-.86037)******	(.29257)***	(-.23406)****	(-.08728)
Adap	-.66616******	.10268	-	.11157*
	(-.80737)******	(.12139)	-	(.15434)*

[a]Figures in parentheses are corrected correlation coefficients.

*Takes t = 1.28 at .10 level of significance for one-tailed test.

***Takes t = 1.96 at .025 level of significance for one-tailed test.

****Takes t = 2.32 at .01 level of significance for one-tailed test.

*****Takes t = 2.57 at .005 level of significance for one-tailed test.

******Takes t = 3.29 at .0005 level of significance for one-tailed test.

are -.80737, and .15434, respectively. The first coefficient is significant at the .0005 level, whereas the remainder is at the .10 level.

The findings suggest that organizational autonomy is strongly correlated with output goal achievement and with adaptiveness. Organizational complexity is moderately correlated with output goal achievement. Centralization is weakly correlated with output goal achievement and so is leadership innovativeness with adaptiveness.

The outcomes of hypothesis testing

The statistical hypothesis were tested using the corrected coefficients of correlation. Table 7 indicates the tests of hypotheses linking the environmental determinants to the organizational health effectiveness. Out of ten hypotheses, five were upheld. These are the hypotheses that link the environmental complexity to centralization scores, resourcefulness to centralization scores, resourcefulness to organizational complexity scores, accessibility to centralization scores, and the accessibility score to the leadership innovativeness score.

The hypotheses that failed to gain empirical support are of two kinds: (a) the hypotheses that are rejected because the r-values are not significantly different from zero, and (b) the hypotheses that are significant but in a direction that is different than expected. The first kind includes hypotheses linking environmental complexity and resourcefulness scores to the leadership score, and the accessibility score to the organizational complexity score. The second kind includes

Table 7. Statistical hypotheses linking the environmental determinants to the organizational health effectiveness

Statistical hypothesis	Ho	Ha	Corrected r-value	Test result
S.H. 1	$r_{(Ledi,Ecop)}=0$	$r_{(Ledi,Ecop)}>0$	-.11169	Not supt.
S.H. 2	$r_{(Orau,Ecop)}=0$	$r_{(Orau,Ecop)}>0$	-.82094******	Not supt.
S.H. 3	$r_{(Cent,Ecop)}=0$	$r_{(Cent,Ecop)}<0$	-.19219*	Supported
S.H. 4	$r_{(Orau,Reso)}=0$	$r_{(Orau,Reso)}>0$	-.75553******	Not supt.
S.H. 5	$r_{(Cent,Reso)}=0$	$r_{(Cent,Reso)}<0$	-.24991***	Supported
S.H. 6	$r_{(Ledi,Reso)}=0$	$r_{(Ledi,Reso)}>0$	-.04860	Not supt.
S.H. 8	$r_{(Ocop,Reso)}=0$	$r_{(Ocop,Reso)}>0$	.32284***	Supported
S.H. 10	$r_{(Ocop,Acce)}=0$	$r_{(Ocop,Acce)}>0$	.09653	Not supt.
S.H. 11	$r_{(Cent,Acce)}=0$	$r_{(Cent,Acce)}<0$	-.19790***	Supported
S.H. 12	$r_{(Ledi,Acce)}=0$	$r_{(Ledi,Acce)}>0$	.57001******	Supported

*Takes t = 1.28 at .10 level of significance for one-tailed test.

***Takes t = 1.96 at .025 level of significance for one-tailed test.

******Takes t = 3.29 at .0005 level of significance for one-tailed test.

hypotheses linking the environmental complexity score to the organizational autonomy score, and the resourcefulness score to the organizational autonomy score.

Table 8 shows the tests of hypotheses linking the individual determinants to organizational health effectiveness. The table indicates that none of the four hypotheses were upheld. However, these hypotheses are quite highly significant in a direction that is different than expected. These hypotheses were expected to have a positive direction whereas the result is a negative.

Table 9 reveals the test of hypotheses linking the correlates of organizational health effectiveness. The table shows that out of three hypotheses, two were upheld. These are the hypotheses that link

Table 8. Statistical hypotheses linking the individual determinants to the organizational health effectiveness

Statistical hypothesis	Ho	Ha	Corrected r-value	Test result
S.H. 7.1	$r_{(Ledi,Lorg)}=0$	$r_{(Ledi,Lorg)}>0$	-.22641*	Not supt.
S.H. 7.3	$r_{(Ledi,Ergo)}=0$	$r_{(Ledi,Ergo)}>0$	-.22121**	Not supt.
S.H. 9.1	$r_{(Ocop,Lorg)}=0$	$r_{(Ocop,Lorg)}>0$	-.27275*****	Not supt.
S.H. 9.3	$r_{(Ocop,Ergo)}=0$	$r_{(Ocop,Ergo)}>0$	-.32428*****	Not supt.

*Takes t = 1.28 at .10 level of significance for one-tailed test.

**Takes t = 1.64 at .05 level of significance for one-tailed test.

*****Takes t = 2.57 at .005 level of significance for one-tailed test.

Table 9. Statistical hypotheses linking the correlates of organizational health effectiveness

Statistical hypothesis	Ho	Ha	Corrected r-value	Test result
S.H. 13	$r_{(Cent,Orau)}=0$	$r_{(Cent,Orau)}>0$	.16911*	Supported
S.H. 18	$r_{(Cent,Ocop)}=0$	$r_{(Cent,Ocop)}<0$	-.48521*****	Supported
S.H. 22	$r_{(Ledi,Cent)}=0$	$r_{(Ledi,Cent)}>0$	-.68353******	Not supt.

*Takes t = 1.28 at .10 level of significance for one-tailed test.

*****Takes t = 2.57 at .005 level of significance for one-tailed test.

******Takes t = 3.29 at .0005 level of significance for one-tailed test.

centralization to organizational autonomy and to organizational complexity. The hypothesis that links centralization to leadership innovativeness was not supported primarily because it has a significant negative direction. The expectation was a positive direction.

Finally, Table 10 indicates the test of hypotheses linking organizational health effectiveness to organizational productivity effectiveness. The table shows two out of seven hypotheses gained empirical support. These hypotheses link leadership innovativeness to adaptiveness and organizational complexity to output goal achievement. The remaining hypotheses were not supported primarily because they have a significant negative direction. The expectation was a positive direction.

In conclusion, out of 24 hypotheses, nine were empirically supported. These findings will be further discussed in a later section of this

Table 10. Statistical hypotheses linking the organizational health effectiveness to the organizational productivity effectiveness

Statistical hypothesis	Ho	Ha	Corrected r-value	Test result
S.H. 14	$r_{(Opga,Orau)}=0$	$r_{(Opga,Orau)}>0$	-.86037******	Not supt.
S.H. 15	$r_{(Adap,Orau)}=0$	$r_{(Adap,Orau)}>0$	-.80737******	Not supt.
S.H. 16	$r_{(Opga,Ledi)}=0$	$r_{(Opga,Ledi)}>0$	-.08728	Not supt.
S.H. 17	$r_{(Adap,Ledi)}=0$	$r_{(Adap,Ledi)}>0$	.15434*	Supported
S.H. 19	$r_{(Opga,Ocop)}=0$	$r_{(Opga,Ocop)}>0$	.29257***	Supported
S.H. 20	$r_{(Adap,Ocop)}=0$	$r_{(Adap,Ocop)}>0$	.12139	Not supt.
S.H. 21	$r_{(Opga,Cent)}=0$	$r_{(Opga,Cent)}>0$	-.23406****	Not supt.

*Takes t = 1.28 at .10 level of significance for one-tailed test.

***Takes t = 1.96 at .025 level of significance for one-tailed test.

****Takes t = 2.32 at .01 level of significance for one-tailed test.

******Takes t = 3.29 at .0005 level of significance for one-tailed test.

chapter. The section below presents the findings of the path analysis using the error-in-variable procedure.

The Results of the Path Analysis

This section focuses on the results of path analysis using the error-in-variable procedure (Warren, et al., 1979). First, the path coefficients for the full model will be presented. This is followed by the decomposition of variance. Third, the decomposition of effects into the direct and indirect components will be also presented. Finally, the results of a singularity test will be shown.

The path coefficients for the full model

The path analysis has been used by this present study to find solutions for the recursive equation indicated in Chapter III. The solutions were attempted by using six regressions, regression 1 to 6, presented in Table 11. In regression 1, where organizational autonomy was predicted by two environmental determinants, i.e., environmental complexity and resourcefulness, environmental complexity proved to be a better predictor, having a path coefficient of -.66762 significant at the .01 level. Resourcefulness has a nonsignificant path coefficient of -.17132.

In regression 2, organizational complexity was predicted by two environmental determinants, i.e., resourcefulness and accessibility, and two individual determinants, i.e., loyalty to other organization and external reference group orientation. The table reveals that none of the determinants was adequate as a predictor. The path coefficients of

Table 11. Regression coefficient (B), Path coefficient (B*), Standard error (SE) and Test of significance

Regression number	Dependent variable	Independent variable	B	B*	SE	t
1	Orau	Ecop	-.64779	-.66762	.25417	-2.54862****
		Reso	-.15892	-.17132	.23995	-0.66229
2	Ocop	Reso	.22795	.23572	.21086	1.08101
		Acce	.04602	.05377	.07404	0.62158
		Lorg	-.11847	-.11604	.18103	-0.65441
		Ergo	-.13877	-.12486	.27289	-0.50851
3	Cent	Ecop	.40789	.39188	.44902	0.90840
		Reso	-.38034	-.38221	.26984	-1.40952*
		Acce	-.10476	-.11896	.07979	-1.31297*
		Orau	.07152	.06667	.25404	0.28155
		Ocop	-.50929	-.49493	.14934	-3.41029*****
4	Ledi	Ecop	.12812	.16166	.31165	0.41110
		Reso	-.26997	-.35631	.30106	-0.89673
		Acce	.31784	.47400	.07045	4.51157*****
		Lorg	.21819	.27275	.20739	1.05208
		Ergo	-.13777	-.15821	.21802	-0.63190
		Cent	-.53554	-.70334	.10153	-5.27493*****

*Takes t = 1.28 at .10 level of significance for one-tailed test.

****Takes t = 2.32 at .01 level of significance for one-tailed test.

*****Takes t = 3.29 at .0005 level of significance for one-tailed test.

Table 11 (Continued)

Regression number	Dependent variable	Independent variable	B	B*	SE	t
5	Opga	Orau	-.90499	-.81102	.09966	-9.08033*****
		Ocop	-.04089	-.03820	.09283	-0.44049
		Cent	-.32092	-.30852	.16564	-1.93741**
		Ledi	-.39002	-.28548	.20678	-1.88618**
6	Adap	Orau	-.91517	-.84306	.12246	-7.47302*****
		Ocop	-.15702	-.15079	.12607	-1.24545
		Ledi	.23404	.17609	.12651	1.84992**

** Takes t = 1.64 at .05 level of significance for one-tailed test.

resourcefulness and accessibility are .23572 and .05377, respectively, neither of which is significant. The path coefficients of loyalty to other organization and external reference group orientation are -.11604 and -.12486, respectively, neither being significant.

Regression 3 finds solutions for the prediction of centralization. Three environmental determinants and two correlates of the organizational health effectiveness were used as predictors. The table shows that resourcefulness, accessibility and organizational complexity are better predictors. Their path coefficients are -.38221, -.11896 and -.49493, respectively. The first two coefficients are significant at the .10 level, the latter at .0005. Environmental complexity and organizational autonomy have nonsignificant path coefficients of .39188 and .06667, respectively. Furthermore, out of the three significant path coefficients, organizational complexity appears to be a stronger predictor of centralization. Its path coefficient, -.49493, is the largest and is highly significant.

Regression 4 offers solutions for the prediction of leadership innovativeness. All three environmental determinants and the two individual determinants were used as predictors. The table shows that only accessibility and centralization are adequate as predictors with path coefficients of .47400 and -.70334, respectively. Both coefficients are significant at the .0005 level. The other two environmental determinants, i.e. environmental complexity and resourcefulness have nonsignificant path coefficients of .16166 and -.35631, respectively. The two individual determinants also have nonsignificant path coefficients. The

path coefficient of loyalty to other organization is .27275 whereas for external reference group orientation, it is -.15821. Furthermore, out of the two significant path coefficients, centralization appears to be a stronger predictor of leadership innovativeness. Its path coefficient is bigger than the one of accessibility.

Regression 5 predicts output goal achievement by using four correlates of the organizational health effectiveness. The table reveals that only organizational autonomy, centralization and leadership innovativeness have significant path coefficients of -.81102, -.30852 and -.28548, respectively. The first coefficient is significant at the .0005 level, the remainder at .05. Organizational complexity has a nonsignificant path coefficient of only -.03830. Examining the results even further will show that organizational autonomy is the strongest predictor of output goal achievement. Its path coefficient (-.81102) not only is highly significant but also is more than the joint contribution of the other two significant predictors.

Finally, regression 6 offers solutions for the prediction of adaptiveness by using three correlates of organizational health effectiveness. The table shows that organizational autonomy and leadership innovativeness are adequate as predictors of adaptiveness. The path coefficient of organizational autonomy is -.84306 and that of leadership innovativeness is .17609. The first coefficient is significant at the .0005 level, the latter at .05. Organizational complexity has a nonsignificant path coefficient of -.15079. Out of the two significant predictors, organizational autonomy is a much stronger predictor of adaptiveness. Its path

coefficient (-.84306) is highly significant and is 4.8 times the contribution of leadership innovativenss.

The solutions using six regressions have resulted in a total of 11 significant path coefficients, five of which have been the strongest predictors of a particular dependent variable. Figure 8 describes all the results for the full model. The modified model containing only the significant path coefficients will be presented in a later part of this chapter. Appendix D shows the results of least square procedure.

In addition to examining the significance of path coefficients of the full model, the analysis examined the variance. The results of this analysis will be presented in the sub-section that follows.

The decomposition of variance (S^2)

The Super Carp program provides the R^2 for Y on true X and the observed variance (S^2_{obs}), where Y is the dependent variable and X is the independent variable. The R^2 for Y on true X was reproduced on Table A32 in Appendix A, whereas the observed variance (S^2_{obs}) was presented in Table A31. These data, along with the estimated measurement error variance ($S^2_{m.e.}$) presented also in Table A31, provide the basis to calculate both the amount and the percentage of explained true variance, that is, $S^2_{expl'd}$ and R^2_{true} Y on true X, respectively.

Since $S^2_{expl'd}$ = (R^2 for Y on true X) (S^2_{obs} for Y), and R^2_{true} Y on true X = $S^2_{expl'd}/S^2_{true}$ for Y, then the decomposition of S^2_{true} can be performed as shown in Table 12. The table shows that over 70 percent of the true variances of leadership innovativeness and

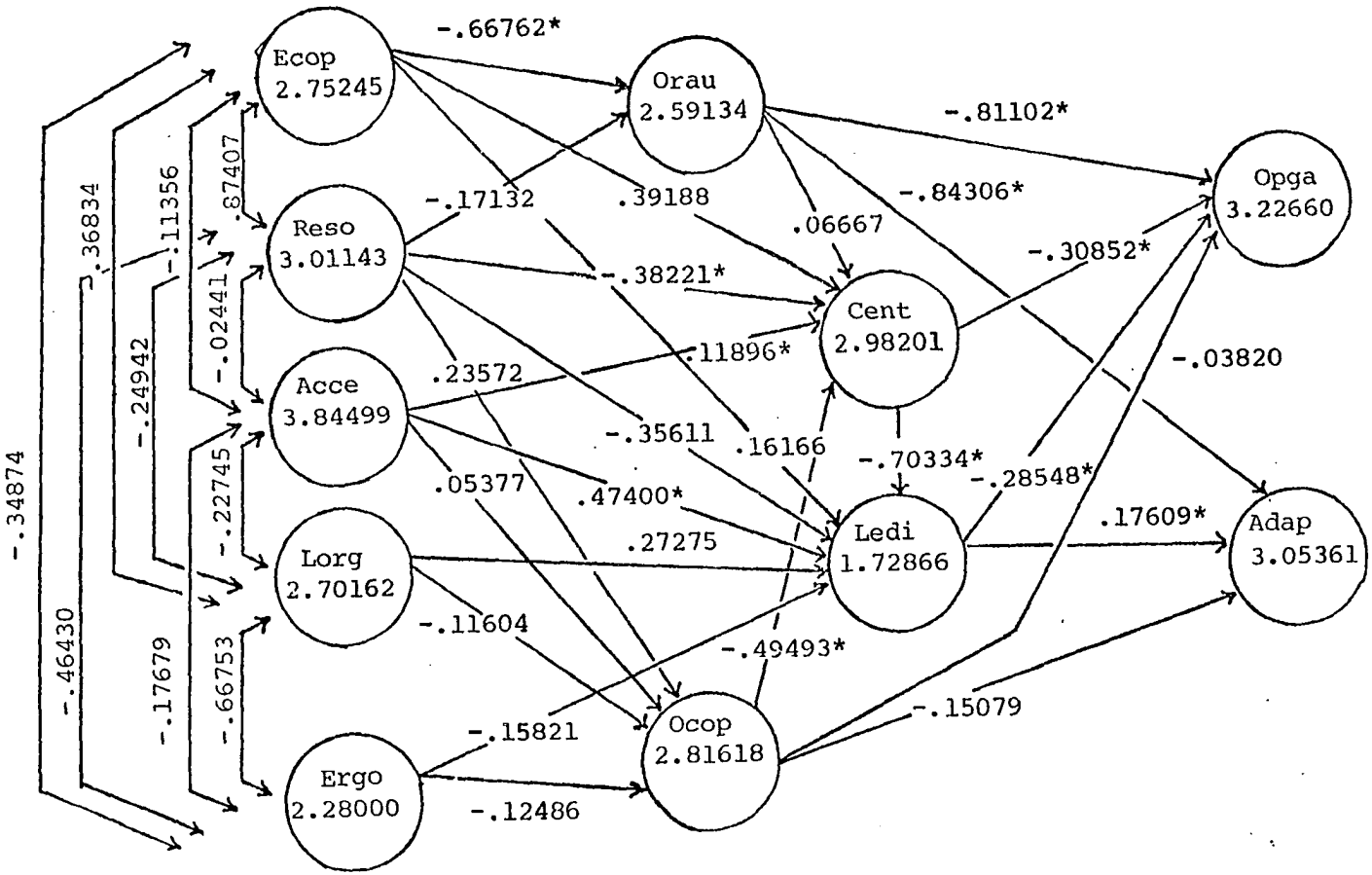


Figure 8. Path model of organizational effectiveness

Table 12. Decomposition of the true score variance

Dependent variable	True score variance = (S^2_{true})	Explained variance + ($S^2_{expl'd}$)	Unexplained variance ($S_q{}^2$)	R^2 True Y on True X
Orau	2.59134	1.75571	0.83563	0.67754
Ocop	2.81618	0.43208	2.38410	0.15343
Cent	2.98201	0.88019	2.10182	0.29516
Ledi	1.72866	1.25069	0.47797	0.72349
Opga	3.22660	2.52883	0.69777	0.78374
Adap	3.05361	2.10555	0.94806	0.68953

output goal achievement have been explained.

More than 60 percent of the true variances of organizational autonomy and adaptiveness have been explained. Only 15.3 and 29.5 percent respectively of the true variances of organizational complexity and centralization have been explained.

Table 13 further breaks down the observed variance (S^2_{obs}) into the explained true variance ($S^2_{expl'd}$), specification error variance (S^2_q) and the measurement error variance ($S^2_{m.e.}$). The table shows that the explained variances of output goal achievement and adaptiveness are 70 and 59.7 percent, respectively, of the total amount of the observed variances. Over 53 percent of the observed variance of organizational autonomy and over 43 percent of the observed variance of leadership innovativeness are the explained variances. Only 12.7 and 25.2 percent of the observed variances of organizational complexity and centralization respectively are the explained variances.

Taking the results in Tables 12 and 13 together, the following facts emerge. First, the facts on organizational complexity and centralization are consistent in both tables. Their low percentages of explained true variances and of explained variances over the observed variances are primarily due to the specification errors. Both have relatively low measurement errors, .59192 for organizational complexity and .50899 for centralization. The first is 17 percent of its observed variance and the latter is 15 percent of its observed variance. This means that the predictors (resourcefulness, accessibility, loyalty to other organizations, external reference group orientation) entered in

Table 13. Breakdown of observed variance (S^2_{obs})

Dependent variable	Observed variance (S^2_{obs})	=	True score variance ($S^2_{expl'd}$	+ S^2_q)	+ Measurement error ($S^2_{m.e.}$)	$S^2_{expl'd}/S^2_{obs}$
Orau	3.2957		1.75571	0.83563	0.70436	0.53273
Ocop	3.4081		0.43208	2.38410	0.59192	0.12678
Cent	3.4910		0.88019	2.10182	0.50899	0.25213
Ledi	2.8643		1.25069	0.47797	1.13564	0.43665
Opga	3.6133		2.52883	0.69777	0.38670	0.69987
Adap	3.5268		2.10555	0.94806	0.47319	0.59701

regression 2 are not to be used at all to predict organizational complexity. The absence of significant path coefficient in this particular regression supports this conclusion. In the case of centralization, the problem seems to be insufficiency in specifying the right predictors. There are three independent variables (resourcefulness, accessibility and organizational complexity) in regression 3 that are significant. However, their path coefficients are relatively small (-.38221, -.11896 and -.49493).

Second, leadership innovativeness shows the opposite case of what has been explained above. Even though 72.3 percent of the true variance has been explained, that comprises only 43.7 percent of the total observed variance. The prediction of innovativeness leadership suffered primarily because of the measurement error. The specification error is only 17 percent of the total observed variance, whereas the measurement error variance is 39 percent of its total observed variance. This case shows that the effects of measurement error are not as detrimental for prediction as the specification error.

Third, the prediction of organizational autonomy shows that 67.8 percent of the true variance has been explained; this comprises 53.3 percent of its total observed variance. The specification and measurement errors contribute almost equally to the total amount of its observed variance, 26 and 21 percent, respectively. It can be concluded that the prediction of organizational autonomy is affected by both the moderate errors in specification and measurement.

Fourth, the prediction of adaptiveness shows that 69 percent of the

true variance has been explained; this comprises 59.7 percent of its total observed variance. Further examination will show that the specification error is 27 percent of its observed variance, whereas the measurement error variance is only 13 percent. Therefore it can be concluded that the prediction of adaptiveness is more affected by the moderate specification error.

Finally, the prediction of output goal achievement shows that 78.4 percent of its true variance has been explained; this comprises 70 percent of its total observed variance. This high percentage was achieved primarily because the prediction of output goal achievement experienced only small specification and measurement errors, 19 and 13 percent, respectively, of each of their observed variances. The results in the previous sub-section support the conclusion. Three out of four predictors are significant at least at the .05 level.

In conclusion, it can be mentioned that the ideal situation for making the prediction is when the study can successfully specify the relevant theoretical concepts and measure them with relatively small error. In order to see how much each variable has contributed for the prediction of a particular dependent variable, the sub-section that follows will deal with the decomposition of effects into its direct and indirect components.

The decomposition of effects

Table 14 presents the decomposition of effects into the direct and indirect components. Regressions 1 and 2 have only direct effects which are also the total effects. The table shows that in these two regressions, environmental complexity has the largest path coefficient of -.66762. This means that environmental complexity is one of the best predictors of organizational autonomy.

Tables 11 and 14 show that in predicting centralization, only resourcefulness, accessibility and organizational complexity have significant direct effects. However, their path coefficients are relatively small. The table shows that environmental complexity, resourcefulness and accessibility have indirect effects in predicting centralization. To calculate the indirect effects, the path coefficients of two reduced regressions of centralization are presented in Table A33 in Appendix A. By subtracting the results of the reduced regression from the relatively full regression, one will find the indirect effect.

Table 14 reveals that aside from having a relatively small and non-significant path coefficient, the direct effect of environmental complexity on centralization has been greatly reduced by its indirect effect which leaves a total effect of only .02634. A similar situation happens to resourcefulness. Its significant direct effect of -.38221 was cut down by its indirect effects and gives a total effect of -.27642.

Contrary to the above cases, the direct effect of accessibility on centralization has been expanded by its indirect effect via organizational complexity. This gives a total effect of -.20157. Organizational

Table 14. Decomposition of effect into direct and indirect components

Regression number	Dependent variable	Independent variable	Total effect	Indirect effect via:				Direct effect
				Orau	Ocop	Cent	Ledi	
1	Orau	Ecop	-.66762	(-)	(-)	(-)	(-)	-.66762
		Reso	-.17132	(-)	(-)	(-)	(-)	-.17132
2	Ocop	Reso	.23572	(-)	(-)	(-)	(-)	.23572
		Acce	.05377	(-)	(-)	(-)	(-)	.05377
		Lorg	-.11604	(-)	(-)	(-)	(-)	-.11604
		Ergo	-.12486	(-)	(-)	(-)	(-)	-.12486
3	Cent	Ecop	.02634	-.36554	(-)	(-)	(-)	.39188
		Reso	-.27642	.00127	.10452	(-)	(-)	-.38221
		Acce	-.20153	(-)	-.08257	(-)	(-)	-.11896
		Orau	.06667	(-)	(-)	(-)	(-)	.06667
		Ocop	-.49493	(-)	(-)	(-)	(-)	-.49493
4	Ledi	Ecop	-.09040	(-)	(-)	-.25206	(-)	.16166
		Reso	-.03348	(-)	(-)	.32283	(-)	-.35631
		Acce	.52151	(-)	(-)	.04751	(-)	.47400
		Lorg	.27275	(-)	(-)	(-)	(-)	.27275
		Ergo	-.15821	(-)	(-)	(-)	(-)	-.15821
		Cent	-.70334	(-)	(-)	(-)	(-)	-.70334
5	Opga	Orau	-.84025	(-)	(-)	-.00482	-.02441	-.81102
		Ocop	.01707	(-)	(-)	.00631	.04896	-.03820
		Cent	-.08710	(-)	(-)	(-)	.22142	-.30852
		Ledi	-.28548	(-)	(-)	(-)	(-)	-.28548
6	Adap	Orau	-.84306	(-)	(-)	(-)	(-)	-.84306
		Ocop	-.15079	(-)	(-)	(-)	(-)	-.15079
		Ledi	.17609	(-)	(-)	(-)	(-)	.17609

autonomy has only a direct effect which amounts to .06667, whereas organizational complexity has a significant direct effect of -.49493, the largest in regression 3. The findings mean that in general the prediction of centralization is not affected too much by the intervening variables, which in this case are organizational autonomy and organizational complexity.

In regression 4 only two direct effects are significant, one of which is a relatively large path coefficient (-.70334). The indirect effect was calculated in a way similar to the one explained earlier. Table A33 presents the results of a reduced regression of leadership innovativeness. Table 14 shows that the indirect effects via centralization have greatly reduced the direct effects of environmental complexity and resourcefulness in predicting leadership innovativeness. As the result the total effects of environmental complexity and resourcefulness are extremely small, -.09040 and -.03348, respectively. On the other hand, the indirect effect via centralization has expanded the direct effect of accessibility in predicting leadership innovativeness which gives a total effect of .52151. Since there are no indirect effects affecting the prediction of leadership innovativeness by the two individual determinants and centralization, their direct effects are also the total effects. This amounts to .27275 and -.15821 respectively for loyalty to other organization and for external reference group orientation. The direct effect of centralization is rather large, -.70334. The findings mean that even though centralization is not that important an intervening variable to both environmental complexity and

resourcefulness, it is one of the best predictors of leadership innovativeness.

It was found before that three out of four direct effects in regression 5 are significant in predicting output goal achievement. The indirect effects are calculated in a way similar to the one explained earlier. The reduced regressions of output goal achievement are given in Table A33. Table 14 shows that the indirect effects via both centralization and leadership innovativeness have expanded the direct effects of organizational autonomy (-.81102) to make a total of -.84025. The indirect effects via both centralization and leadership innovativeness have contributed to a positive total effect of .01707 of organizational complexity in predicting output goal achievement.

The indirect effect via leadership innovativeness has reduced the direct effect of centralization (-.30852) making a total effect of only -.08710. The direct effect of leadership innovativeness is significant, but only -.28548.

The findings seem to suggest that centralization and leadership innovativeness have some influence in mediating the prediction of output goal achievement.

Finally, in regression 6 only the direct effects are found in predicting adaptiveness. Two of the three direct effects are significant. The direct effect of organizational autonomy is substantially large, -.84306, whereas the direct effects of organizational complexity and leadership innovativeness are relatively small, -.15079 and .17609 respectively. Thus, organizational autonomy is one of the best predictors

of adaptiveness.

Having seen the direct and indirect effects of each variables in predicting a particular dependent variable, the sub-section that follows will examine the results of a singularity test for the six regressions.

The singularity test results

The Super Carp program or EIV procedure provides a test for singularity of the matrix, M_{xx}, that is, the variance-covariance matrix for the independent variables. A singular matrix is a matrix whose inverse, M_{xx}^{-1} is not dissimilar from zero (Faisal and Warren, 1978a). Table 15 summarizes the results of the singularity tests for the 6 regressions. The table reveals that the calculated values for the tests are greater than the tabulated F-values. Therefore, it can be concluded that the variance-covariance matrices for the independent variables are significantly different from zero.

This result means that the variation in one or more variables is not due entirely to measurement error. As discussed earlier, the variance in the variables is contributed by both the measurement and specification errors. Furthermore, the result also means that the reliability coefficients are not low. This fact is substantiated by the finding presented in Table 1 which shows the reliability coefficients ranging from .60352 to .98024. Finally, the result means that there is no multicollinearity between the variables in the model. In other words all the variables are independent.

Table 15. Results of the singularity test (n=128)

Regression	Calculated value	Tabulated value	d.f.	Level of significance
1. Orau on Ecop,Reso	1.65652	1.37	126,infinity	.01
2. Ocop on Reso,Acce,Lorg,Ergo	1.93568	1.37	124,infinity	.01
3. Cent on Ecop,Reso,Acce,Orau,Ocop	1.50776	1.37	123,infinity	.01
4. Ledi on Ecop,Reso,Acce,Lorg,Ergo,Cent	1.33772	1.25	122,infinity	.05
5. Opga on Orau,Ocop,Cent,Ledi	1.66362	1.37	124,infinity	.01
6. Adap on Orau,Ocop,Ledi	2.47550	1.37	125,infinity	.01

Discussion

This section aims at linking the findings to the two objectives stated in Chapter I. First, the discussion links the findings to the scientific objective. This is followed by the discussion that links the findings to the applied objective.

Linking the findings to the scientific objective

The question to be examined here is what the findings mean scientifically. The answer to this question will be pursued from three related directions: (1) the measurement, (2) the theoretical statement, (3) the theoretical model.

The measurement The findings clearly suggest three related points: (a) that some of the empirical indicators selected for measuring the concepts are not adequate as measures, (b) that even if some other empirical indicators are adequate as measures, the concepts are not very well measured, (c) that the ideal situation in model building is when there is an adequate measurement and adequate specification.

The first point is well-explained by the fact that the study started out with 67 empirical indicators to measure the ten concepts, one of which has three sub-concepts. It turned out that only 35 indicators were adequate as measures based on their reliability and validity coefficients. These indicators provided measures for only 9 concepts and 2 sub-concepts. As the result, one concept had to be excluded from the analysis due to the lack of adequate measures. This means that in studying a

relatively unexplored area of sociology in a developing country, it is important to have a relatively large number of indicators measuring each concept to start with. As this study progresses, only a small number of these indicators appear to be reliable and valid.

The second point is the fact that after making the correction for attenuation all r-values increased, some of which have even gone up substantially. This means that even with adequate indicators, these empirical measures did not really cover the meaning sphere of the conceptual definition. In other words, there is a lack of substantive coverage (Warren, Klonglan, Faisal, 1977, p. 45).

With regard to the third point, the study presents three situations in model building: (a) adequate measurement-inadequate specification, (b) inadequate measurement-adequate specification, and (c) adequate measurement-adequate specification.

Adequate measurement-inadequate specification As described earlier in the chapter, organizational complexity and centralization have large amounts of specification error variances. In spite of low measurement error variances, the large specification error variances plagued the predictions of both organizational complexity and centralization. The only difference between the two predictions is that the regression that predicted centralization has three significant path coefficients and explained 29.5 percent of the true variance, whereas no significant path coefficient was found in the regression that predicted organizational complexity.

Inadequate measurement-adequate specification The second situation is represented by the regression that predicts leadership innovativeness. In spite of its large measurement error variance, 72.3 percent of the true variance in leadership innovativeness has been explained. This is primarily due to adequate specification of the conceptual elements for the regression equation.

Adequate measurement-adequate specification This situation is represented by the remaining three regressions that respectively predicted organizational autonomy, output goal achievement and adaptiveness. These regressions not only have concepts that were adequately measured but also have adequate specification of the relevant concepts. The "adequate measurement-adequate specification" is the ideal situation that must be strived for in model building.

One general conclusion emerges from the above discussion. The three situations suggest that both the adequacy in the measurement and specification are important in model building. However, the adequacy of specification is more basic for making a more accurate prediction. Without a strong theoretical foundation for the model, one will end up with a low percentage of explained variance of the dependent variable in question.

The theoretical statement Pursuing the answer to the question from the theoretical statement results in the following points: (1) that the possibility of a theoretical statement to gain empirical support depends

on the adequacy of measurement and on the soundness of theory from which it is generated, (2) that the theoretical statements which have gained empirical support cross culturally and cross organizationally, provide a sound basis for the refinement of organizational effectiveness theory, (3) that the theoretical statements which are empirically significant in a direction different from that expected raise questions with regards to the soundness of the theory from which they are generated and the possibility of these theoretical statements having different linkages in a simple organization in a developing country.

The first point is represented by the five rejected hypotheses. Three of these hypotheses involve leadership innovativeness which has relatively large measurement error variance. The remaining hypotheses which involve concepts having relatively small measurement error variances were not empirically supported. It appears that there is no sufficient theoretical foundation to link accessibility and organizational complexity and adaptiveness and organizational complexity directly.

The second point emerges from the fact that theoretical statements that link environmental complexity to centralization, resourcefulness to centralization, resourcefulness or organizational complexity, and organizational autonomy to centralization have gained empirical support both cross culturally and cross organizationally. This means that these theoretical statements have the quality of generalizability, a characteristic required by scientif knowledge (Reynolds, 1971). Thus, these theoretical statements provide a basis for refining the existing theory of organizational

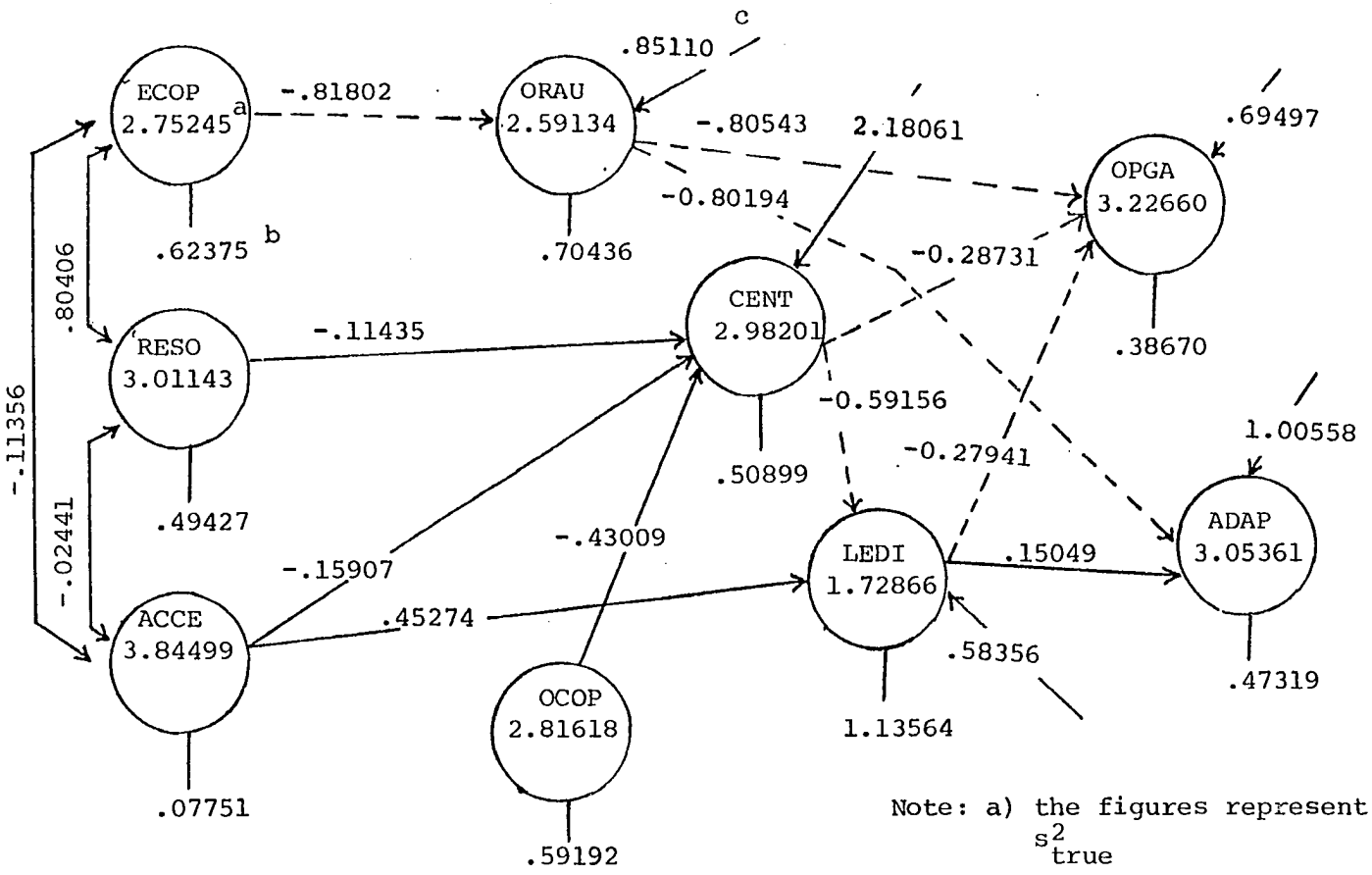
effectiveness. In this respect, Merton (1967, p. 157) states:

> It is my central thesis that empirical research goes far beyond the passive role of verifying and testing theory: it does more than confirm or refute hypotheses. Research plays an active role: it performs at least four major functions which help shape the development of theory. It initiates, it reformulates, it deflects and it clarifies theory.

The third point emerges from the fact that there are ten theoretical statements which are significant empirically but in a direction different from what was expected. These ten theoretical statements were expected to have a positive direction. Empirically, all ten theoretical statements were found to have a negative direction. The fact suggests that either these statements do not have sound theoretical foundation or the conceptual elements involved in these statements do covary differently in a simple organization in a developing country. Thus, further research is needed.

The theoretical model Finally, answering the question about the theoretical model brings up the following important points: (1) that the resulting model actually contains less predictive linear relationships than what was expected, (2) that the theoretical framework employed in this present study proves to be feasible for predicting organizational effectiveness.

The first point is represented by looking at the modified path model which contains only 11 significant path coefficients out of 24. The modified path model is shown in Figure 9. The path coefficients (B*), standard error (SE) and the t-test are presented in Table 16. The table shows that all but one path coefficient are significant. The



Note: a) the figures represent s^2_{true}

b) the figures represent $s^2_{m.e.}$

c) the figures represent s^2_q

Dotted lines represent unhypothesized relationships

Figure 9. Reduced path model of organizational effectiveness

Table 16. The regression coefficient (B), path coefficient (B*), standard error (SE) and the t-test for the reduced model

Dependent variable	Independent variable	B	B*	SE	t
Orau	Ecop	-0.79372	-0.81802	0.08272	-9.59544****
Cent	Reso	-0.11379	-0.11435	0.11888	-0.95723
	Acce	-0.14009	-0.15907	0.08067	-1.73654*
	Ocop	-0.44257	-0.43009	0.15693	-2.82013***
Ledi	Acce	0.30357	0.45274	0.06280	4.83426****
	Cent	-0.45040	-0.59156	0.08316	-5.41596****
Opga	Orau	-0.89875	-0.80543	0.09443	-9.51748****
	Cent	-0.29886	-0.28731	0.13990	-2.13628**
	Ledi	-0.38173	-0.27941	0.19788	-1.92910*
Adap	Orau	-0.87054	-0.80194	0.13277	-6.55685****
	Ledi	0.20001	0.15049	0.12103	1.65253*

*Takes t = 1.64 at .05 level of significance for one-tailed test.

**Takes t = 1.96 at .025 level of significance for one-tailed test.

***Takes t = 2.32 at .01 level of significance for one-tailed test.

****Takes t = 3.29 at .0005 level of significance for one-tailed test.

nonsignificant path coefficient is the one of resourcefulness in predicting centralization. Furthermore, all but one path coefficient decrease slightly. The path coefficient of environmental complexity in predicting organizational autonomy increases from -.66762 in the full model to -.81802 in the modified model.

Table 17 presents the decomposition of true variance for the modified

Table 17. Decomposition of the true variance in the reduced model

Dependent variable	True variance (S^2_{true})	Explained variance ($S^2_{expl'd}$)	Unexplained variance (S^2_q)	$R^2_{true\ Y\ on\ true\ X}$
Orau	2.59134	1.74024	0.85110	0.67156
Cent	2.98201	0.80140	2.18061	0.26874
Ledi	1.72866	1.14510	0.58356	0.66242
Opga	3.22660	2.53163	0.69497	0.78461
Adap	3.05361	2.04803	1.00558	0.67069

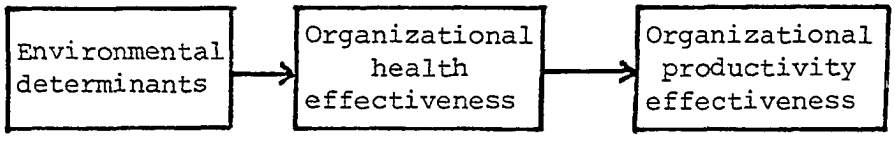
model. Interestingly enough, with only 11 path coefficients in the model, the explained true variance are almost equal to the ones of the full model. For organizational autonomy the explained true variance of the full model is 67.8 percent whereas in the modified model it is 67.2; for centralization the explained true variance of the full model is 29.5 percent whereas in the modified model it is 26.9; for leadership innovativeness the explained true variance of the full model is 72.3 percent whereas in the modified model it is 66.2; for output goal achievement the explained true variance of the full model is 78.4 percent whereas in the modified model it is 78.5 percent; and finally for adaptiveness the explained true variance in the full model is 69.0 percent whereas in the modified model it is 67.1 percent. This means that aside from the predictive relationships in the modified model, there is no other relationship that will meaningfully add to explain the true variance of the dependent variable in question.

Moreover, the modified model shows that out of 11 significant path coefficients, only 5 predictive relationships met the original expectation. These are the predictive relationships between resourcefulness, accessibility, organizational complexity and centralization; between accessibility and leadership innovativeness; and finally between leadership innovativeness and adaptiveness. The predictive relationship that differs from the original expectation in terms of the direction of their relationships are the ones between environmental complexity and organizational autonomy; between organizational autonomy and output goal achievement and adaptiveness; between centralization and output goal achievement and leadership innovativeness; and finally between leadership innovativeness and output goal achievement. These relationships have been indicated with the dotted lines in Figure 9.

The second point stems from the fact that in the analysis the three environmental determinants (environmental complexity, resourcefulness and accessibility) have proven themselves as significant predictors of three correlates of the organizational health effectiveness (organizational autonomy, centralization and leadership innovativeness). Furthermore, the findings also show that only three of the correlates have the predictive relationships with each other. These correlates are organizational complexity, centralization and leadership innovativeness.

Finally, the results reveal that three correlates of organizational health effectiveness have a predictive linear relationship with organizational productivity effectiveness. These correlates are organizational autonomy, centralization and leadership innovativeness.

In conclusion, the findings show that the environmental determinants do affect the organizational health effectiveness and the latter, in turn, affects the organizational productivity effectiveness. Thus, the final theoretical framework takes this following form.



This framework essentially shows the part taken from Mulford et al. (1977) multiple indicator approach of organizational effectiveness. Thus, the theoretical framework is capable of predicting effectiveness and is applicable cross culturally and cross organizationally.

Finally, it is worth mentioning that the failure of the individual determinants to stay in the framework predicting organizational effectiveness is primarily because of the weakness in the theoretical basis for specifying the proper kind of linear relationships. Instead of having a predictive relationship, the individual determinants simply significantly covary with two correlates of the organizational health effectiveness. Thus, the finding shows the need for a refinement.

Linking the findings to the applied objective

Having linked the findings to the scientific, this sub-section attempts to link the findings to the applied objective. The question raised here is what do the findings mean for the improvement of VICHA's effectiveness. The answer to this question can be pursued from two directions: (1) external organization, and (2) internal organization.

The findings in Figure 9 suggest that the VICHA's effectiveness may be externally improved through three ways: (a) by affecting the discretionary power a VICHA has over elements of its relevant environments, (b) by affecting the distribution of power in decision-making, and (c) by affecting the leadership innovativeness.

The discretionary power a VICHA has over elements of its relevant environments may be affected by manipulating both the heterogeneity and range of the instigated rural development activities. Changes that occur in organizational health effectiveness will in turn affect both the extent of village community members reached by the development activities and the extent of VICHA's ability to make internal adjustments. The finding shows that the increase in heterogeneity and range of development activities will reduce the discretionary power that a VICHA has over elements of its relevant environments which in turn will inversely affect the extent of village community members reached by the development activities and the extent of VICHA's ability to make internal adjustment to meet the requirements of the changing environments. Thus, there is a need to determine an appropriate level of environmental complexity in order to have positive impacts on village community members and on VICHA itself.

The second way is by manipulating the acquisition of relevant resources. This affects the distribution of power in decision-making within VICHA which in turn impacts on the extent that village community members are reached by the development activities and on the degree of

novelty in VICHA's leadership. The latter will further have impacts on the extent to which village community members are reached by the development activities and the extent of VICHA's ability to make internal adjustments. The findings suggest that if resources are more available to VICHA, decision-making will be less centralized. This in turn will inversely affect on both the extent to which community members are reached by development activities and the novelty of VICHA leadership. However, the impact on VICHA's leadership will in turn have two opposing consequences: negatively affecting the extent of village community members reached by development activities and positively affecting VICHA's ability in making adjustment internally. Thus, there is a need to determine how much of the external resources will be made available to VICHA in order to bring a favorable impact on village community members, leadership and VICHA's ability to make internal adjustment, through the distribution of power in decision-making.

The third way of externally affecting VICHA's effectiveness is by manipulating the ease in which VICHA can get to its relevant environment. This will directly affect both the distribution of power in decision-making and VICHA's leadership innovativeness. By increasing the accessibility, one can change the distribution of power in decision-making toward less centralization and at the same time increase the extent of novelty in VICHA leadership. But changes in decision-making will in turn have impacts similar to that originated from the manipulation of acquisition of relevant resources.

VICHA's effectiveness may be also affected internally by manipulating

the degree of knowledge and skill required to undertake the development tasks. This will have impacts similar to that of manipulating acquisition of relevant resources.

Perhaps at this point it is worth asking which of the ways is the best to follow through. The answer depends on the characteristics each VICHA has. However, the discussion presents two possible alternatives: (a) to opt for a short-chain-of-effect, or (b) to opt for a long-chain-of-effect. For a VICHA that has reached a certain stage of development, i.e., a self-propelled village type, perhaps the short-chain-of-effect alternative will be preferable. This is done by two ways: (1) manipulating the extent of heterogeneity and range of levelopment activities, or (2) manipulating the VICHA's accessibility to its relevant environment.

For VICHAs that have shown only some signs of development, i.e., traditional and transitional village types, perhaps the long-chain-of-effect will be opted. This can be carried through two ways also: (1) externally manipulating the acquisition of resources, or (b) internally by manipulating the degree of knowledge and skill.

From the above discussion emerges one important fact. It seems that there are three organizational health correlates, that play important roles in village development. These are organizational autonomy, leadership innovativeness and distribution of power in decision-making in a VICHA. In conclusion, the way opted to improve effectiveness of the Village Change Agency depends on the characteristics of each VICHA as well as on the policy decisions of development planners.

CHAPTER V. SUMMARY AND IMPLICATION

This final chapter aims at presenting a summary of what has been discussed in the previous chapters and at looking to the possible implications of the findings. The implications will cover two areas of concern: scientific and applied implications.

Summary

In the first two decades after independence, Indonesia was not able to fully implement national development plan primarily because of the internal political instability. It was not until 1969 that meaningful national development got started. The focus of this national undertaking was, for several reasons, on agricultural development. The two most important reasons were: (1) slightly over 80 percent of the population of Indonesia live in rural areas; thus development focused on agriculture would affect the life of the greatest part of the population; (2) the level of living in rural areas of Indonesia was low as reflected in the amount of calories and protein consumed, the level of education, the condition of the socio-economic infrastructures, the level of productivity and in the rural income.

The rural areas of Indonesia consist of village units characterized by great diversity. The villages in Java have been in existence longer than those in other parts of Indonesia and are at the same time a residential unit, a production unit, an adat unit, i.e., the whole body of tradition and customary laws and an administrative unit.

Before Indonesia's independence, the village government was the most important organization in bridging the village community to the colonial government. This is still true at the present. Although the responsibilities for initiating, coordinating and supervising the development activities at the village level was granted to the village head, it is also well-recognized that in the future the village government and other local-community-based organizations will be far more important. This recognition points out the need to study the existing local community-based organizations, i.e., village government and village social institute organizations in order to improve their effectiveness in carrying out the village development responsibilities. In addition, concerns have been raised over the need to advance studies on Indonesian villages by using better techniques. Therefore, the present study has attempted to focus on seeking some of the determinants of effectiveness of these local-community-based organizations. The village government organization and the village social institute are called Village Change Agency (VICHA).

The present study began with a recognition that studying organizational effectiveness in Indonesia will pose some problems because this area of sociological study is still a frontier. In addition, there is very little literature that focuses on the effectiveness of small locally based organizations. It is assumed that the organization is a semi-open system. The theoretical framework used here which takes into account the interactions among environments, organization and participating individual members will have a general applicability. Such a theoretical framework has been suggested by Sells (1964) and others and

partially developed by Mulford and associates (1977). Because of several constraints, the present study has applied the multiple indicator approach to organizational effectiveness in a limited fashion, that is, by looking at the organizational health effectiveness, organizational productivity effectiveness and relationship with the environment.

Although a theoretical framework has general applicability, its constituting conceptual elements may vary depending on the problems and the purpose of the study (Blalock, 1968b). In the present study ten concepts are identified, one of which has three sub-concepts. These conceptual elements are output goal achievement and adaptiveness as the conceptual elements of organizational productivity effectiveness, autonomy, complexity, centralization, and leadership innovativeness as the conceptual elements of organizational health effectiveness, and environmental complexity, resourcefulness, and accessibility as the environmental determinants. In addition, cosmopoliteness has been also identified as an individual determinant. Cosmopoliteness has three sub-concepts: loyalty to other organization, commitment to role skill and external reference group orientation. Thus, there are 12 conceptual elements utilized.

Using these 12 conceptual elements, 26 propositions have been developed: 10 propositions linking the environmental determinants to the organizational health effectiveness, 6 propositions linking the individual determinants to the organizational health effectiveness, 3 propositions linking the correlates of organizational health effectiveness to each other, and 7 propositions linking the correlates of organizational health effectiveness to the organizational productivity effectiveness.

Furthermore, a path model for predicting the VICHA's effectiveness was also constructed.

At the empirical level, the conceptual elements were measured by 67 indicators. These empirical indicators were developed from data scored with the certainty method. The data for this study were gathered from 128 VICHAs in three regencies of Central Java province.

The analysis showed that only 35 indicators are reliable and valid as measures for the 11 conceptual elements. Consequently, one conceptual element, i.e., commitment to role skill, was excluded from further analysis. This led to the formulation of 24 empirical and statistical hypotheses and the modification of the original path model.

The findings show that after making the correction for attenuation, some of the correlation coefficients have been strengthened, some of which have even been increased substantially. Using these corrected r-values, the hypotheses were tested. The findings were: 19 correlation coefficients are significant and 5 are nonsignificant. However, out of 19 significant coefficients of correlation, only nine provide empirical support for the hypotheses. The remainder show a direction that is different from what was expected. The findings mean that the conceptual elements linked in the propositions do covary.

The supported hypotheses linking environmental determinants to the organizational health effectiveness are between environmental complexity and centralization, resourcefulness and centralization, resourcefulness and organizational complexity, accessibility and centralization, and between accessibility and leadership innovativeness. The

hypotheses linking the individual determinants to the organizational health effectiveness were not empirically supported.

The supported hypotheses linking the correlates of organizational health effectiveness are between organizational autonomy and centralization, and between organizational complexity and centralization. The supported hypotheses linking correlates of organizational health effectiveness to the organizational productivity effectiveness are the ones between leadership innovativeness and adaptiveness and between organizational complexity and output goal achievement.

A path analysis using the error-in-variable procedure was conducted. The analysis shows that 11 path coefficients are significant. These are the linear relationships between environmental complexity and organizational autonomy, resourcefulness and centralization, and accessibility and centralization and leadership innovativeness. These significant linear relationships represent the prediction of organizational health effectiveness with environmental determinants. In addition, the linear relationships between organizational complexity and centralization, and between centralization and leadership innovativeness were found significant. Finally, the significant linear relationships between the correlates of organizational health effectiveness and organizational productivity effectiveness included organizational autonomy and output goal achievement, organizational autonomy and adaptiveness, centralization and output goal achievement, leadership innovativeness and output goal achievement, and between leadership innovativeness and adaptiveness. Of the 11 significant path

coefficients only five that support the expected relationships. These are the relationships between resourcefulness and centralization, accessibility and centralization, accessibility and leadership innovativeness, organizational complexity and centralization, and between leadership innovativeness and adaptiveness. The remaining significance predictive linear relationships have not been hypothesized in the direction indicated by the empirical findings.

The findings showed that the prediction of organizational complexity and centralization was affected more by specification error (errors in equations) whereas the prediction of leadership innovativeness was affected primarily by measurement error. The prediction of organizational autonomy was affected by moderate specification and measurement errors, whereas the prediction of adaptiveness was affected by only moderate specification error. Finally, the prediction of output goal achievement was affected by only small specification and measurement errors.

In predicting the various dependent variables, the direct effects have provided greater contributions than the indirect effects. The most important ones in terms of the amount of their contribution are environmental complexity in predicting organizational autonomy (-.66762), organizational autonomy in predicting output goal achievement (-.81102) and adaptiveness (-.84306), and centralization in predicting leadership innovativeness (-.70334). The remaining contributions are below .5 either positively or negatively. The contribution through the indirect effects is generally small. In several cases, the indirect effects have

reduced considerably the contribution of the direct effects.

The singularity test shows that the variation in one or more variables is due to both the measurement and specification errors, the empirical indicators have relatively high reliabilities and the absence of multicollinearity between the variables in the model.

This discussion on the significant findings leads to several important conclusions. The ideal situation in the model building is when one has measured and specified the relevant concept or concepts adequately.

Some of the theoretical statements failed to gain empirical support primarily because of inadequacy in measuring them, perhaps some because of lack of soundness of their theoretical foundations. But others have gained empirical support cross culturally and cross organizationally. These theoretical statements are the ones linking environmental complexity to centralization, resourcefulness to centralization, resourcefulness to organizational complexity, organizational autonomy to centralization, and organizational complexity to adaptiveness. Thereby, these theoretical statements have the generalizability quality and can provide a sound basis for refining the existing theory of organizational effectiveness.

Finally, the findings lead to the conclusion that some of the linkages among concepts in the theoretical statements go beyond covariation. Eleven linear relationships are actually predictive relationships whereas the remainder is covariation. Furthermore, the findings lead also to a conclusion that as a theoretical framework, the multiple indication approach developed by Mulford and associates (1977) is applicable

cross culturally and cross organizationally. The failure of some individual determinants to stay in the theoretical framework was primarily due to not specifying the proper kind of linear relationship.

From the applied standpoint, the findings lead to the following important conclusions. First, the improvement of VICHA's effectiveness can be pursued from two directions, external and internal to the organization. External to the organization, the improvement can be attempted by manipulating the heterogeneity and range of development activities instigated at the village level; manipulating the acquisition of relevant resources; and by manipulating the accessibility to the relevant environments of the VICHA. From inside organization, improvement can be pursued by affecting the degree of knowledge and skill required to carry out the development tasks. Attempting to manipulate the said determinants will have different chain-of-effects. Basically, there are two kinds of chain-of-effects: short and long chain-of-effects. The short chain-of-effect can possibly be achieved through affecting the heterogeneity and range of development activities instigated into the village level and by increasing the accessibility to relevant environments of the VICHA. The long term chain-of-effect can possibly occur by affecting externally the acquisition of the relevant resources needed for village development, or internally by affecting the degree of knowledge and skill required to carry out the development tasks at the village level.

The findings seem to indicate that either way, the attempt to improve the VICHA's effectiveness will call for attention on three key

issues, that is, organizational autonomy, organizational leadership and distribution of power in decision-making. Perhaps for villages that have reached a certain stage of development, i.e., the self-propelled village type, the organizational autonomy issue will be more important with regard to improving effectiveness. For villages that have only shown some signs of development, i.e., the traditional and transitional, the leadership and distribution of power in decision-making issues will be relatively more important.

Implications

This section will look into the implications of the findings. These implications include the scientific as well as the applied dimensions.

Scientific implications

There are three scientific implications that emerge from the findings.

1. Searching for the applicability of the external focus of the "multiple indicator approach": This implication is related to the theoretical framework employed in this present study. It has been shown that a part of the multiple indicator approach to organizational effectiveness is applicable across culture and across organization. Consequently, it calls for examining the other part of the approach that focuses on the inputs to program development and public support (Mulford et al., 1977, p. 30). The inputs to program development effectiveness

asks questions about "the appropriateness of programs, the nature of the audience being reached and whether the benefits of organizational activities outweigh their costs", whereas the public support effectiveness deals with "the questions originating from persons outside of the organization" (Mulford et al., 1977, pp. 25-26). In doing this, not only will a comprehensive picture of effectiveness be provided, but scientific evidence will also be offered with regard to the extent of community participation in the village development. Even though the community participation is strongly desired, at the moment, the rural development initiatives are predominantly instigated through the central government bureaucratic organizational structure. It appears that there is very little room left for local initiatives to emerge. Unless scientific undertakings offer sufficient proofs of the ability of the village community to initiate and to support development activities, there will be very little hope that meaningful community participation will be given more room to take place.

2. Searching for a more sound basis in the theories: This implication stems from the fact that relationships that were thought to be predictive, turned out to be only covaried, and that the direction of these relationships that was thought to be positive turned out to be negative. In addition, there is also indication of the lack of substantive coverage. Thus, there is a need to search for more sound bases within the theories in order to generate better theoretical statements. Consequently, it also requires a redefinition of the meaning

sphere of the concepts, to respecify the relevant predictors and to rediscover the reliable and valid measures.

3. Examining the moderator effects: The analyses done so far were based on the total sample. In actuality, the total sample was drawn from three areas reflecting different characteristics in terms of the population density and the agricultural productivity. The question is whether the difference in these characteristics will have some effect on the VICHA's effectiveness. This question needs to be answered.

Another moderator effect may possibly come from the state of the village development itself. So far three states of village development were identified. Thus, the question is whether effectiveness of VICHA will differ significantly due to the difference in the state of village development. This question needs to be answered also.

Applied implications

Aside from the scientific implications, the findings also have applied implications. These implications center on three isuses; autonomy, leadership and participation in decision-making. The findings show that one road to village development will bring up the issue of organizational autonomy, whereas by taking another road, issues of leadership and participation in the decision-making, will be brought up.

1. How much autonomy: This issue has been surfaced for years without solution. The Law No. 5-1974 on Local Government simply states that the arrangement of the village government will be determined by law. Since then, five years have gone by without any indication that Indonesia

is going to have a law on village government. This reflects the intricacy of the issues. Unfortunately, too much attention has been given to this legal aspect of the village government autonomy which hinders policy-makers from seeing the dangerous effects of the increase in instigated village development activities on community participation.

The findings have shown that the increase in heterogeneity and range of village development activities will reduce the autonomy but increase the extent to which village community members are affected by the activities and the ability of VICHA to make internal adjustment. Of course, for the development planners, the above mentioned end results are strongly desired. But the danger is, that in pursuing this goal, the village government officials will be treated merely as the lower government bureaucrats with very little to say. To be a bureaucrat means to merely be appointed. However, the village government officials come to the office through election and represent the people in their respective community. This means asking for more local organization autonomy which in turn will allow more local participation. Thus, the increase in the instigated change may bring desirable end results by reaching more extensively the members in any village community and by making internal adjustment, but at the same time may also discourage local participation in the development of its own community. Thereby, the preference should be on the instigated changes with sufficient room for local organization autonomy.

2. Participation in decision-making and leadership: These two issues are closely related if the other road to village development is taken. These two issues will likely emerge if the road to development is taken through manipulating the acquisition of resources, making it easier to get to relevant environments or improving the knowledge and skills.

By making resources more available, improving the ease of getting to the centers of development, and improving the knowledge and skill, participation in the decision-making or less centralization will be achieved. This in turn will increase the extent to which village community members are reached by the development activities and improve the leadership. This fact reemphasizes the need for making room for local organization autonomy.

In actuality, power in the decision-making is more centralized regardless of the fact that more resources have been made available to VICHA, roads have been upgraded and knowledge and skills have been improved. Thus, once again one finds a conflict between the expectation and reality.

Finally, leadership will be more innovative if there is less centralized decision-making and greater access to centers of development activities. In actuality, decision-making continues to be centralized although access to centers of development has been greatly improved. Perhaps the findings can help clarify why in the past the village development has been very slow. It seems that people involvement has been

excluded from many village development undertakings. Thus, it is not sufficient to simply emphasize the need for people participation in the policy statements related to rural development. What is really required is to let the participation itself to flourish.

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ACKNOWLEDGMENTS

The author wishes to extend his sincere gratitude and appreciation to Dr. Gerald E. Klonglan for the guidance and encouragement throughout the development of this dissertation and throughout the years of his graduate program. The author is indebted to Dr. Charles L. Mulford and Dr. Richard D. Warren for their valuable comments and suggestions in the preparation of this dissertation. The author also expresses his sincere appreciation to Drs. Michael B. Whiteford, J. T. Scott, and Arnold Paulson for their valuable advice and willingness to serve in the author's graduate committee.

Acknowledgment and appreciation are extended to Dr. Sue C. Faisal for her advice during the preparation of this dissertation.

Acknowledgment and appreciation are also extended to Dr. Wallace E. Ogg and Mrs. Edna Ogg for their assistance in editing the English of this thesis.

The author's four year stay in Ames would not be fruitful and joyful without the support and Christian love of his American friends. Thereby, the author wishes to extend his sincere appreciation and gratitude to Max and Eileen Exner, Wallace and Edna Ogg, Ken and Julia Carlander, Daddy Burt and Mama Lou Moore, Jerry and Eileen Klonglan.

The author wishes to acknowledge the opportunity and monetary support rendered to him by the Agricultural Development Council, Inc., the Satya Wacana Christian University, the Department of Sociology and Anthropology, Iowa State University, and the United Board for

Christian Higher Education in Asia.

The author is also grateful for the assistance rendered by Kutut Suwondo, Rukmadi Warsito and the students during the field research. Thanks and appreciation are also extended to Mrs. Pat Gunnells for typing this dissertation.

The author wishes to extend his gratitude to his parents and father-in-law, and to his sister and her family for their continuous love and support during the author's four year absence from home.

Finally, this dissertation would not be completed without the sacrifice, love and understanding of the author's wife, Annie, and his children, Ricky, Siska and Grace. The author's highest appreciation and deepest gratitude are extended especially to them.

APPENDIX A

Table A1. Descriptive statistics of empirical indicators for output goal achievement (n=128)

Variable number	Mean	Standard deviation	Range	Minimum	Maximum
091	44.055	11.234	62.000	4.000	66.000
092	44.945	11.691	57.000	10.000	67.000
093	45.594	8.194	50.000	22.000	72.000
094	49.484	10.309	62.000	8.000	70.000
095	19.008	4.510	23.000	5.000	28.000
096	8.516	2.209	11.000	2.000	13.000
097	28.648	5.872	30.000	10.000	40.000
098	33.992	9.423	57.000	0.000	57.000
099	26.914	6.908	35.000	7.000	42.000
100	35.469	8.902	44.000	12.000	56.000
101	28.836	8.848	45.000	6.000	51.000

Table A2. Descriptive statistics of empirical indicators for adaptiveness (n=128)

Variable number	Mean	Standard deviation	Range	Minimum	Maximum
103	45.570	10.463	64.000	0.000	64.000
104	28.508	6.533	34.000	8.000	42.000
105	8.836	1.839	10.000	4.000	14.000
106	36.391	6.738	40.000	10.000	50.000
107	29.398	10.285	48.000	2.000	50.000
108	16.500	5.487	26.000	4.000	30.000

Table A3. Descriptive statistics of empirical indicators for leadership innovativeness (n=128)

Variable number	Mean	Standard deviation	Range	Minimum	Maximum
044	7.586	2.302	15.000	0.000	15.000
045	10.812	2.003	13.000	6.000	19.000
046	8.430	2.655	14.000	2.000	16.000
047	9.984	2.712	13.000	2.000	15.000
048	11.781	2.019	10.000	6.000	16.000
049	8.250	2.184	11.000	2.000	13.000
051	9.812	1.995	10.000	6.000	16.000

Table A4. Descriptive statistics of empirical indicators for centralization (n=128)

Variable number	Mean	Standard deviation	Range	Minimum	Maximum
071	4.859	1.787	10.000	1.000	11.000
072	4.891	1.802	9.000	0.000	9.000
073	5.820	1.884	9.000	1.000	10.000
074	4.016	1.572	8.000	0.000	8.000
075	5.969	2.043	9.000	2.000	11.000
076	13.852	1.908	11.000	5.000	16.000
077	6.242	1.955	8.000	2.000	10.000
078	4.477	1.932	9.000	0.000	9.000

Table A5. Descriptive statistics of empirical indicators for organizational complexity (n=128)

Variable number	Mean	Standard deviation	Range	Minimum	Maximum
065	6.602	2.952	14.000	0.000	14.000
066	9.906	1.950	13.000	1.000	14.000
067	9.047	2.125	13.000	1.000	14.000
068	9.312	1.751	10.000	3.000	13.000
069	8.430	1.918	10.000	4.000	14.000

Table A6. Descriptive statistics of empirical indicators for organizational autonomy (n=128)

Variable number	Mean	Standard deviation	Range	Minimum	Maximum
055	2.125	1.814	7.000	0.000	7.000
056	8.523	1.886	14.000	0.000	14.000
057	3.219	1.919	9.000	0.000	9.000
058	7.531	2.803	15.000	1.000	16.000
059	6.242	2.574	15.000	1.000	16.000
060	6.359	1.835	10.000	1.000	11.000
061	6.680	2.293	13.000	2.000	15.000
062	6.461	1.729	11.000	1.000	12.000
063	6.844	2.075	14.000	0.000	14.000

Table A7. Descriptive statistics of empirical indicators for environment complexity (n=128)

Variable number	Mean	Standard deviation	Range	Minimum	Maximum
110	9.547	2.073	14.000	0.000	14.000
111	9.758	2.125	14.000	0.000	14.000
112	8.344	1.884	9.000	4.000	13.000
113	10.219	1.988	11.000	4.000	15.000

Table A8. Descriptive statistics of empirical indicators for resourcefulness (n=128)

Variable number	Mean	Standard deviation	Range	Minimum	Maximum
115	8.516	2.427	13.000	0.000	13.000
116	8.734	2.261	13.000	0.000	13.000
117	9.437	1.856	9.000	4.000	13.000
118	10.203	2.246	12.000	3.000	15.000
119	11.734	1.834	9.000	7.000	16.000
120	12.547	1.664	8.000	8.000	16.000

Table A9. Descriptive statistics of empirical indicators for accessibility (n=128)

Variable number	Mean	Standard deviation	Range	Minimum	Maximum
083	12.555	2.433	10.000	6.000	16.000
084	11.875	3.565	16.000	0.000	16.000
085	11.891	3.496	16.000	0.000	16.000
086	11.906	3.535	16.000	0.000	16.000
087	11.266	3.557	16.000	0.000	16.000

Table A10. Descriptive statistics of empirical indicators for cosmopoliteness (n=128)

Variable number	Mean	Standard deviation	Range	Minimum	Maximum
Commitment to role skills:					
034	10.617	1.904	10.000	5.000	15.000
035	13.297	1.667	9.000	7.000	16.000
Loyalty to organization:					
037	5.953	2.886	14.000	0.000	14.000
038	5.070	2.999	13.000	0.000	13.000
Reference group orientation:					
040	4.305	2.316	11.000	0.000	11.000
041	4.961	2.425	10.000	1.000	11.000

Table All. Reliability and validity analyses of empirical indicators for output goal achievement (n=128)

Variable number	Before indicators deleted			After indicators deleted		
	Coefficient alpha	Alpha if item deleted	Corrected item-total correlation	Coefficient alpha	Alpha if item deleted	Corrected item-total correlation
	0.79949 (0.82891)[a]			0.86164 (0.88545)		
091		0.76531	0.60973		0.84451	0.64555
092		0.75190	0.69856		0.82849	0.72558
093		0.82512	0.01864		-	-
094		0.75324	0.69759		0.82316	0.73361
095		0.77475	0.72342		0.85030	0.72947
096		0.79523	0.53936		-	-
097		0.77115	0.66484		0.85245	0.61523
098		0.75476	0.69975		0.82457	0.72767
099		0.78001	0.51206		-	-
100		0.82373	0.06907		-	-
101		0.79880	0.31603		-	-

[a]Figures in parentheses indicate the standardized item alpha coefficient.

Table A12. Reliability and validity analyses of empirical indicators for adaptiveness (n=128)

Variable number	Before indicators deleted			After indicators deleted		
	Coefficient alpha	Alpha if item deleted	Corrected item-total correlation	Coefficient alpha	Alpha if item deleted	Corrected item-total correlation
	0.70507 (0.76692)[a]			0.81690 (0.84804)		
103		0.59523	0.62656		0.80790	0.69406
104		0.61168	0.63130		0.69541	0.76340
105		0.70086	0.53547		-	-
106		0.62311	0.58540		0.76375	0.67279
107		0.73996	0.29550		-	-
108		0.69199	0.34581		-	-

[a]Figures in parentheses indicate the standardized item alpha coefficient.

Table A13. Reliability and validity analyses of empirical indicators for leadership innovativeness (n=128)

Variable number	Before indicators deleted			After indicators deleted		
	Coefficient alpha	Alpha if item deleted	Corrected item-total correlation	Coefficient alpha	Alpha if item deleted	Corrected item-total correlation
	0.06763 (0.06382)[a]			0.56520 (0.56584)		
044		0.34851	-0.34497		-	-
045		0.00380	0.09376		0.58562	0.28588
046		0.14294	-0.05661		-	-
047		-0.30999	0.31549		0.34144	0.45291
048		-0.14532	0.26483		0.41091	0.41889
049		0.02035	0.06848		-	-
051		0.11089	-0.04464		-	-

[a]Figures in parentheses indicate the standardized item alpha coefficient.

Table A14. Reliability and validity analyses of empirical indicators for centralization (n=128)

Variable number	Before indicators deleted			After indicators deleted		
	Coefficient alpha	Alpha if item deleted	Corrected item-total correlation	Coefficient alpha	Alpha if item deleted	Corrected item-total correlation
	0.73171 (0.73620)[a]			0.85720 (0.85820)		
071		0.68068	0.54654		0.84203	0.58748
072		0.67443	0.57602		0.83593	0.63179
073		0.65519	0.65704		0.83253	0.65432
074		0.68255	0.56042		0.83925	0.61659
075		0.64991	0.66232		0.82757	0.68651
076		0.85720	-0.47969		-	-
077		0.65863	0.63387		0.83380	0.64580
078		0.68478	0.51788		0.84861	0.54490

[a]Figures in parentheses indicate the standardized item alpha coefficient.

Table A15. Reliability and validity analyses of empirical indicators for organizational complexity (n=128)

Variable number	Before indicators deleted			After indicators deleted		
	Coefficient alpha	Alpha if item deleted	Corrected item-total correlation	Coefficient alpha	Alpha if item deleted	Corrected item-total correlation
	0.46721 (0.45877)[a]			0.58738 (0.64393)		
065		0.40259	0.27988		0.82452	0.23085
066		0.30144	0.42178		0.36472	0.51073
067		0.28111	0.43078		0.29629	0.53925
068		0.52663	0.03275		-	-
069		0.48680	0.12205		-	-

[a]Figure in parentheses indicates the standardized item alpha coefficient.

Table A16. Reliability and validity analyses of empirical indicators for organizational autonomy (n=128)

Variable number	Before indicators deleted			After indicators deleted		
	Coefficient alpha	Alpha if item deleted	Corrected item-total correlation	Coefficient alpha	Alpha if item deleted	Corrected item-total correlation
	0.69038 (0.67064)[a]			0.82100 (0.82229)		
055		0.68520	0.24631		-	-
056		0.71766	0.05127		-	-
057		0.68427	0.25527		-	-
058		0.59183	0.63525		0.77764	0.65335
059		0.62259	0.53626		0.73295	0.72810
060		0.63688	0.52470		0.83668	0.49470
061		0.61046	0.60087		0.73154	0.74020
062		0.67703	0.29593		-	-
063		0.71057	0.11791		-	-

[a]Figures in parentheses indicate the standardized item alpha coefficient.

Table A17. Reliability and validity analyses of empirical indicators for environmental complexity (n=128)

Variable number	Before indicators deleted			After indicators deleted		
	Coefficient alpha	Alpha if item-deleted	Corrected item-total correlation	Coefficient alpha	Alpha if item-deleted	Corrected item-total correlation
	0.42659 (0.41422)[a]			0.81510 (0.81525)		
110		0.10223	0.45649		-[b]	0.68811
111		0.16245	0.40378		-[b]	0.68811
112		0.45366	0.13283		-	-
113		0.56660	0.00964		-	-

[a]Figures in parentheses indicate the standardized item alpha coefficient.

[b]Not calculated.

Table A18. Reliability and validity analyses of empirical indicators for resourcefulness (n=128)

Variable number	Before indicators deleted			After indicators deleted		
	Coefficient alpha	Alpha if item-deleted	Corrected item-total correlation	Coefficient alpha	Alpha if item-deleted	Corrected item-total correlation
	0.69801 (0.67644)[a]			0.82554 (0.82473)		
115		0.58111	0.62713		0.68231	0.75464
116		0.68786	0.61904		0.71767	0.72407
117		0.65683	0.43619		-	-
118		0.61177	0.55765		0.85778	0.57713
119		0.73471	0.14428		-	-
120		0.72088	0.18369		-	-

[a]Figures in parentheses indicate the standardized item alpha coefficient.

Table A19. Reliability and validity analyses of empirical indicators for accessibility (n=128)

Variable number	Before indicators deleted			After indicators deleted		
	Coefficient alpha	Alpha if item-deleted	Corrected item-total correlation	Coefficient alpha	Alpha if item-deleted	Corrected item-total correlation
	0.94162 (0.93512)[a]			0.97870 (0.97871)		
083		0.97870	0.49096		-	-
084		0.90784	0.94684		0.96549	0.96839
085		0.91045	0.93422		0.97443	0.93591
086		0.90920	0.94020		0.96953	0.95382
087		0.91526	0.90977		0.97759	0.92440

[a]Figures in parentheses indicate the standardized item alpha coefficient.

Table A20. Reliability and validity analyses of empirical indicators for cosmopoliteness (n=128)

Variable number	Before indicators deleted: Coefficient alpha	Before indicators deleted: Alpha if item-deleted	Before indicators deleted: Corrected item-total correlation	After indicators deleted: Coefficient alpha	After indicators deleted: Alpha if item-deleted	After indicators deleted: Corrected item-total correlation
	0.59938 (0.53434)[a]			0.78897 (0.79209)		
Commitment to role skills:						
034		0.68660	-0.10478		-	-
035		0.65390	-0.01520		-	-
Loyalty to organization:						
037		0.43452	0.56125		0.70809	0.65220
038		0.45042	0.53018		0.71899	0.63591
Reference group orientation:						
040		0.46034	0.55625		0.70526	0.67901
041		0.50873	0.43962		0.80251	0.45169

[a]Figures in parentheses indicate the standardized item alpha coefficient.

Table A21. Correlation matrix for output goal achievement indicators (n=128)

	var091	var092	var093	var094	var095	var096	var097	var098	var099	var100	var101
var091	1.00000										
var092	0.55256	1.00000									
var093	-0.04963	0.00010	1.00000								
var094	0.53879	0.60145	0.01754	1.00000							
var095	0.56138	0.66084	0.07445	0.60605	1.00000						
var096	0.41096	0.40287	0.23609	0.33982	0.40893	1.00000					
var097	0.48218	0.45735	0.06050	0.58918	0.49427	0.30479	1.00000				
var098	0.52077	0.65348	0.06166	0.64036	0.57772	0.46311	0.50853	1.00000			
var099	0.28550	0.34490	0.25354	0.36922	0.32709	0.35891	0.57481	0.41418	1.00000		
var100	0.06462	0.09497	-0.21111	0.20686	0.07365	0.05727	0.18710	0.09006	0.02858	1.00000	
var101	0.31944	0.34513	-0.03416	0.17448	0.38682	0.29317	0.26835	0.20861	0.29763	-0.13808	1.00000

Table A22. Correlation matrix for adaptiveness indicators (n=128)

	var103	var104	var105	var106	var107	var108
var103	1.00000					
var104	0.68760	1.00000				
var105	0.48080	0.55488	1.00000			
var106	0.58549	0.67804	0.55037	1.00000		
var107	0.22909	0.15494	0.19996	0.15112	1.00000	
var108	0.25077	0.14113	0.06047	0.18037	0.40760	1.00000

Table A23. Correlation matrix for leadership innovativeness indicators (n=128)

	var044	var045	var046	var047	var048	var049	var051
var044	1.00000						
var045	-0.06820	1.00000					
var046	-0.32878	0.00638	1.00000				
var047	-0.12591	0.27054	-0.01328	1.00000			
var048	-0.02641	0.20587	-0.17765	0.43217	1.00000		
var049	-0.38793	-0.10438	0.59088	0.05915	-0.03035	1.00000	
var051	-0.01875	-0.12315	-0.24033	0.15081	0.22037	-0.08853	1.00000

Table A24. Correlation matrix for centralization indicators (n=128)

	var071	var072	var073	var074	var075	var076	var077	var078
var071	1.00000							
var072	0.45734	1.00000						
var073	0.45084	0.52519	1.00000					
var074	0.53611	0.52581	0.44216	1.00000				
var075	0.41301	0.49532	0.53661	0.40469	1.00000			
var076	-0.38040	-0.44679	-0.25283	-0.45074	-0.35281	1.00000		
var077	0.37045	0.45675	0.53557	0.42138	0.69000	-0.29850	1.00000	
var078	0.43703	0.36793	0.40445	0.44083	0.45878	-0.31397	0.36739	1.00000

Table A25. Correlation matrix for organizational complexity indicators (n=128)

	var065	var066	var067	var068	var069
var065	1.00000				
var066	0.18908	1.00000			
var067	0.23517	0.70404	1.00000		
var068	0.00752	0.01787	0.05315	1.00000	
var069	0.21818	0.02980	-0.01657	0.01128	1.00000

Table A26. Correlation matrix for organizational autonomy indicators (n=128)

	var055	var056	var057	var058	var059	var060	var061	var062	var063
var055	1.00000								
var056	0.02905	1.00000							
var057	0.53026	-0.03622	1.00000						
var058	0.27638	0.01847	0.19776	1.00000					
var059	-0.08241	0.02558	0.08482	0.058332	1.00000				
var060	0.21350	0.05443	0.14297	0.400967	0.46162	1.00000			
var061	0.16679	-0.01554	0.17705	0.62078	0.72022	0.42247	1.00000		
var062	-0.00596	0.16924	0.09274	0.15863	0.24890	0.27001	0.16857	1.00000	
var063	-0.00523	0.02709	-0.01705	0.19036	0.01451	0.14310	-0.00729	0.19357	1.00000

Table A27. Correlation matrix for environmental complexity indicators (n=128)

	var110	var111	var112	var113
var110	1.00000			
var111	0.68811	1.00000		
var112	0.11680	0.06619	1.00000	
var113	-0.02162	-0.04142	0.09329	1.00000

Table A28. Correlation matrix for resourcefulness indicators (n=128)

	var115	var116	var-17	var118	var119	var120
var115	1.00000					
var116	0.75287	1.00000				
var117	0.46522	0.35071	1.00000			
var118	0.56133	0.51782	0.45448	1.00000		
var119	-0.01322	0.05693	0.03210	-0.00018	1.00000	
var120	0.00372	0.06404	-0.01179	0.09855	0.54344	1.00000

Table A29. Correlation matrix for accessibility indicators (n=128)

	var083	var084	var085	var086	var087
var083	1.00000				
var084	0.45657	1.00000			
var085	0.51264	0.93955	1.00000		
var086	0.47766	0.95134	0.91597	1.00000	
var087	0.45781	0.91914	0.88302	0.91064	1.00000

Table A30. Correlation matrix for cosmopoliteness indicators (n=128)

	var034	var035	var037	var038	var040	var041
var034	1.00000					
var035	0.43570	1.00000				
var037	-0.17385	-0.07239	1.00000			
var038	-0.14695	-0.14442	0.67540	1.00000		
var040	-0.25375	-0.12155	0.55471	0.50364	1.00000	
var041	-0.02885	-0.01270	0.30015	0.32301	0.57000	1.00000

Table A31. Observed variance, reliability, estimated true value and estimated measurement error variance

Variable	Observed variance (s^2_{obs})	Reliability ($\hat{\rho}$)	Estimated true variance $\hat{\rho}(s^2_{obs})$	Estimated measurement error variance $s^2_{m.e.}=s^2_{obs}-\hat{\rho}(s^2_{obs})$
Opga	3.6133	0.89298	3.226604	0.386695
Adap	3.5268	0.86583	3.053609	0.473190
Ledi	2.8643	0.60352	1.728662	1.135637
Cent	3.4910	0.85420	2.982012	0.508987
Ocop	3.4081	0.82632	2.816181	0.591918
Orau	3.2957	0.78628	2.591343	0.704357
Ecop	3.3762	0.81525	2.752447	0.623752
Reso	3.5057	0.85901	3.011431	0.494268
Acce	3.9225	0.98024	3.844991	0.077508
Lorg	3.3508	0.80626	2.701616	0.649183
Ergo	3.1400	0.72611	2.279985	0.860014

Table A32. The R^2 for Y on true X

Dependent variable	Independent variable	R^2 for Y on true X
1. Orau	Ecop,Reso	0.53273
2. Ocop	Reso,Acce,Lorg,Ergo	0.12678
3. Cent	Ecop,Reso,Acce	0.08875
4. Cent	Ecop,Reso,Acce,Orau,Ocop	0.25213
5. Ledi	Ecop,Reso,Acce,Lorg,Ergo	0.21234
6. Ledi	Ecop,Reso,Acce,Lorg,Ergo,Cent	0.43664
7. Opga	Orau,Ocop	0.65899
8. Opga	Orau,Ocop,Cent	0.66287
9. Opga	Orau,Ocop,Cent,Ledi	0.69986
10. Adap	Orau,Ocop,Ledi	0.59702

Table A33. Regression coefficient (B), Path coefficient (B*), Standard error (SE) and Test of significance

Regression	Dependent variable	Independent variable	B	B*	SE	t
3A	Cent	Ecop	.02742	.02634	.36113	0.07592
		Reso	-.27507	-.27642	.29708	-0.92592
		Loca	-.17748	-.20153	.08116	-2.18680***
3B	Cent	Ecop	.01425	.01369	.45215	0.03152
		Reso	-.27633	-.27769	.28152	-0.98159
		Loca	-.17783	-.20193	.08192	-2.17065***
		Orau	-.01800	-.01678	.26549	-0.06781
4A	Ilead	Ecop	-.07164	-.09040	.35858	-0.19979
		Reso	-.02537	-.03348	.34639	-0.07325
		Loca	.34970	.52151	.07748	4.51360*****
		Lorg	-.04602	-.05753	.21490	-0.21413
		Rego	-.11729	-.13469	.23151	-0.50664
5A	Opga	Orau	-.93760	-.84025	.10641	-8.81140*****
		Ocop	.05508	.01707	.08552	0.64407
5B	Opga	Orau	-.93222	-.83543	.10849	-8.59280*****
		Ocop	.01152	.01076	.08977	0.12831
		Cent	-.09060	-.08710	.08629	-1.04997

*** Takes t = 1.96 at .025 level of significance for one-tailed test.

***** Takes t = 3.29 at .0005 level of significance for one-tailed test.

APPENDIX B

Table B1. Per capita income distribution among groups in Indonesia, 1930 (Source: Cooley, 1968, p. 18)

Groups	Java & Madura	Other Islands	Average for Indonesia
Ethnic Indonesians	55 guilders	66 guilders	59 guilders
Nonethnic Indonesians	310 guilders	320 guilders	310 guilders
Europeans	2,300 guilders	3,200 guilders	2,500 guilders

Table B2. Village distribution in Indonesia, 1971/72-1973/74 (Source: Achmadi, 1974, pp. c.2.7-c.2.8.)

Year	Traditional type	Transitional type	Self-propelled type
1971/72	27,840	29,534	790
1972/73	27,337	29,664	1,163
1973/74	25,541	30,878	1,745

Table B3. The bases for selecting three regencies (Source: The Census and Statistical Office of Central Java province)

Regency/ province	Population density[a] (people/ sq. km.)	Agricultural productivity[b] (quintals/ hectare)	Characteristics
Sukoharjo	1,139	39.97	high-high
Semarang	675	37.99	medium-medium
Demak	579	30.99	low-low
Central Java	699	36.55	

[a]The figures refer to the population density in 1977.

[b]The figures refer to rice production only in 1977.

Table B4. The population and sample of the study (Source: Regency offices and Census and Statistical Office of Central Java province)

Regency/ province	Number of VICHA	Number of VICHA for the main sample	Number of VICHA for pre-testing
Sukoharjo	167	35	2[a]
Semarang	274	49[b]	4
Demak	263	46[b]	4
Total in regencies	704	130	10
Total in Central Java province	8,466		

[a]One VICHA was dropped.

[b]In each regency one VICHA was dropped from the sample.

Table B5. Computation of the standardized item score, sub-composite and total composite

Compute	Sub-compute and composite of the standardized score
COMPUTE	OPGA1=(VAR091+VAR094+VAR098)/3
COMPUTE	OPGA2=(VAR092+VAR095+VAR097)/3
COMPUTE	ADAP1=(VAR103+VAR106)/2
COMPUTE	CENT1=(VAR072+VAR073+VAR074+VAR077)/4
COMPUTE	CENT2=(VAR071+VAR075+VAR078)/3
COMPUTE	ORAU1=(VAR059+VAR061)/2
COMPUTE	ACCE1=(VAR084+VAR086)/2
COMPUTE	ACCE2=(VAR085+VAR087)/2
COMPUTE	SOPGA1=(OPGA1-42.51041)/8.69699
COMPUTE	SOPGA2=(OPGA2-30.86718)/6.23755
COMPUTE	SADAP1=(ADAP1-40.98047)/7.70453
COMPUTE	SVAR104=(VAR104-28.50781)/6.53277
COMPUTE	SVAR047=(VAR047-9.98438)/2.71184
COMPUTE	SVAR048=(VAR048-11.78125)/2.01935
COMPUTE	SCENT1=(CENT1-5.24219)/1.41454
COMPUTE	SCENT2=(CENT2-5.10156)/1.51837
COMPUTE	SVAR066=(VAR066-9.90625)/1.94991
COMPUTE	SVAR067=(VAR067-9.04688)/2.12543
COMPUTE	SORAU1=(ORAU1-6.46094)/2.25763
COMPUTE	SVAR058=(VAR058-7.53125)/2.80308
COMPUTE	SVAR110=(VAR110-9.54688)/2.07292
COMPUTE	SVAR111=(VAR111-9.75781)/2.12501
COMPUTE	SVAR115=(VAR115-8.51563)2.42683
COMPUTE	SVAR116=(VAR116-8.73438)/2.26053
COMPUTE	SACCE1=(ACCE1-11.89063)/3.50643
COMPUTE	SACCE2=(ACCE2-11.57813)/3.42204
COMPUTE	SVAR037=(VAR037-5.95313)/2.88591
COMPUTE	SVAR038=(VAR038-5.07031)/2.99917
COMPUTE	SVAR040=(VAR040-4.30469)/2.31584
COMPUTE	SVAR041=(VAR041-4.96094)/2.42494
COMPUTE	SOPGA=SOPGA1+SOPGA2
COMPUTE	SADAP=SADAP1+SVAR104
COMPUTE	SLED1=SVAR047+SVAR048
COMPUTE	SCENT=SCENT1+SCENT2
COMPUTE	SOCOP=SVAR066+SVAR067
COMPUTE	SORAU=SORAU1+SVAR058
COMPUTE	SECOP=SVAR110+SVAR111
COMPUTE	SRESO=SVAR115+SVAR116
COMPUTE	SACCE=SACCE1+SACCE2
COMPUTE	SLORG=SVAR037+SVAR038
COMPUTE	SERGO=SVAR040+SVAR041

APPENDIX C

1. Output goal achievement

Var #	Question Set and #	Program weight	Question and code						
	I.IV A 1.		When you compare the Pelita I to the Pelita II, to what extent has each of the following been implemented in this village?						
091		5	A. Development of Production Infrastructure	In Pelita I Great In Pelita I Little	1	2	3	4	5
092		5	B. Development of Communication Infrastructure	In Pelita I Great In Pelita I Little	1	2	3	4	5
093		5	C. Development of Marketing Infrastructure	In Pelita I Great In Pelita I Little	1	2	3	4	5
094		5	D. Development of Social/ Village Government Infrastructure	In Pelita I Great In Pelita I Little	1	2	3	4	5
095		2	E. Improvement in Village Appearance	In Pelita I Great In Pelita I Little	1	2	3	4	5
096		1	F. Planting Trees along the Sides of Village Main Road	In Pelita I Great In Pelita I Little	1	2	3	4	5
097		3	G. Yough Up-Building	In Pelita I Great In Pelita I Little	1	2	3	4	5
098		4	H. Implementation of Village Assembly Meeting	In Pelita I Great In Pelita I Little	1	2	3	4	5
099		3	I. Sport and Cultural Building	In Pelita I Great In Pelita I Little	1	2	3	4	5

1. Continued

Var #	Question Set and #	Program weight	Question and code

Pelita I: Great Certainty 5 4 3 | Uncert./Cert. 2 1 0 1 2 | Little Certainty 3 4 5 | Pelita I

Transformed score: 00 03 05 06 07 08 09 10 11 13 16

Weighted score = (Transformed score) x (program weight)

Organization score for each indicator = Mean of the weighted scores per indicator obtained from individual officials in each VICHA

100 I.IV A 2. 4 When you compare the Pelita I to the Pelita II, how great is the gap between the number of eligible couples and the number of actual participants of family planning in this village?

In Pelita I Great

1 2 3 4 5

In Pelita I Little

Pelita I: Little Certainty 5 4 3 | Uncert./Cert. 2 1 0 1 2 3 | Great Certainty 4 5 | Pelita I

Transformed score: 00 03 05 06 07 08 09 10 11 13 16

Weighted score = (Transformed score) x (program weight)

Organization score for each indicator = mean of the weighted scores per indicator obtained from individual officials in each VICHA.

1. Continued

Var #	Question Set and #	Program weight	Question and code
101	I.IV A 3.	4	When you compare the Pelita I to the Pelita II, to what extent has the Bimas credit been repaid?

In Pelita I Great

1 2 3 4 5

In Pelita I Little

Pelita I: Great — Little Pelita I

Certainty				Uncert./Cert.					Certainty	
5	4	3	2	1	0	1	2	3	4	5

Transformed score:	00	03	05	06	07	08	09	10	11	13	16

Weighted score = (Transformed score) x (Program weight)

Organization score for each indicator = mean of the weighted scores per indicator obtained from individual officials in each VICHA

2. Adaptiveness

I.IV B 1. When you compare the Pelita I to the Pelita II, to what extent has each of the following changes in this village's government organizations?

103		5	A. Making the Village Development Budget

In Pelita I Great

1 2 3 4 5

In Pelita I Little

104		3	B. Administrative Improvement

In Pelita I Great

1 2 3 4 5

In Pelita I Little

2. Adaptiveness

Var #	Question Set and #	Program weight	Question and code
105	I.IV B 1.	1	C. Amount of Time Devoted to Writing Up Proposals for Projects Funded through the Village Subsidy Program — In Pelita I Great / In Pelita I Little: 1 2 3 4 5
106		4	D. Making of Rules for Implementing Development Activities in the Village — In Pelita I Great / In Pelita I Little: 1 2 3 4 5

Pelita I: Great Certainty / Uncert./Cert. / Little Certainty — Pelita I

	5	4	3	2	1	0	1	2	3	4	5
Transformed score	00	03	05	06	07	08	09	10	11	13	16

Weighted score = (Transformed score) x (Program weight)

Organization score = Mean of the weighted scores per indicator obtained from individual officials in each VICHA

107	I.IV B 2.		In the Pelita II to what extent has the Village Social Institute of this Village been able to implement the following:
		4	A. Making its own Statute — In Pelita II Great / In Pelita II Little: 1 2 3 4 5
108		2	B. Increasing the Number of Sections and or Sub-Sections — In Pelita II Great / In Pelita II Great: 1 2 3 4 5

2. Continued

Var #	Question Set and #	Program weight	Question and code

Little Certainty 5 4 3 2 1 — Uncert./Cert. 0 1 2 3 — Great Certainty 4 5

Transformed score: 00 03 05 06 07 08 09 10 11 13 16

Weighted score = (Transformed score) x (Program weight)

Organization score = mean of the weighted scores per indicator obtained from individual officials in each VICHA

3. Leadership Innovativeness

	I.III B	
044		1

When you compare the Pelita I to the Pelita II, how often have you felt you are being ordered to carry out your tasks?

In Pelita I Often 1 2 3 4 5 In Pelita I Not Often

Pelita I: Not often Certainty 5 4 3 2 1 — 0 — Often Pelita I Certainty 1 2 3 4 5

Transformed score: 00 03 05 06 07 08 09 10 11 13 16

Organization score = Mean of the scores per indicator obtained from individual official in each VICHA

3. Continued)

Var #	Question Set and #	Program weight	Question and code
045		2	To what extent is the cleanliness of your home comparable to the cleanliness of other homes in this village? Great 1 2 3 4 5 Little Little Certainty 5 4 3 2 1 — Uncer./Vert. 0 — 1 2 3 4 5 Great Certainty Transformed score 00 03 05 06 07 08 09 10 11 13 16 Organization score = mean of the scores per indicator obtained from individual officials in each VICHA
	I.III B.		
046		3	When you compare the Pelita I to the Pelita II, how successful have village government and social institute officials been in carrying out the most important development project for this village? In Pelita I Successful 1 2 3 4 5 In Pelita I Unsuccessful Pelita I; Successful Certainty 5 4 3 2 1 — 0 — 1 2 3 Unsuccessful Pelita I Certainty 4 5 Transformed score 00 03 05 06 07 08 09 10 11 13 16 Organization score = mean of the scores per indicator obtained from individual officials in each VICHA

3. Continued

Var #	Question Set and #	Program weight	Question and code
049	I.III B 7.		When you compare the Pelita I to the Pelita II, how successfully has the village government met the deadline for submitting project proposals to be funded through the village subsidy program?

In Pelita I Successful

1 2 3 4 5

In Pelita I Unsuccessful

Pelita I: Successful									Unsuccessful	Pelita I
Certainty				Uncert./Cert.					Certainty	
5	4	3	2	1	0	1	2	3	4	5
Transformed score 00	03	05	06	07	08	09	10	11	13	16

Organization score = mean of the scores per indicator obtained from individual officials in each VICHA

051		6	When you compare the Pelita I to the Pelita II, how often have the village government and social institute officials experienced turnovers in this village?

In Pelita I Often

1 2 3 4 5

In Pelita I Not Often

3. Continued

Var #	Question Set and #	Program weight	Question and code
047	I.III B	4	Of the sixteen items that were being held in the inter-village competition program in this village, how much effort do you think has been put into any of these items to serve as an example to the neighboring villages in the subdistrict? Great 1 2 3 4 5 Little
048		5	In your opinion, to what extent has the village social institute been successful in supporting this village government in carrying out development activities of this village? Great 1 2 3 4 5 Little Little Certainty 5 4 3 2 1 — Uncert./Cert. 0 1 2 3 4 — Great Certainty 5 Transformed score 00 03 05 06 07 08 09 10 11 13 16 Organization score = mean of the scores per indicator obtained from individual officials in each VICHA

3. Continued

Var #	Question Set and #	Program weight	Question and code

Pelita I: Often — Not often Pelita I

Certainty				Uncert./Cert.					Certainty	
5	4	3	2	1	0	1	2	3	4	5
Transformed score										
00	03	05	06	07	08	09	10	11	13	16

Organization score = mean of the scores per indicator obtained from individual officials in each VICHA

4. Centralization

071 I.IIID 1. With regard to the development of this village, how great a role do you have in making important decisions?

Great 1 2 3 4 5 Little

I.IIID 2. With regard to generating village self-support for the development, to what extent has advice from the following officials assured the success of such effort? (A through G have been randomly assigned)

072 A. Hamlet Head — Great 1 2 3 4 5 Little

073 B. Agricultural Village Official — Great 1 2 3 4 5 Little

4. Continued

Var #	Question Set and #	Program weight	Question and code						
074			C. Co-Chairman of Village Social Institute (VSI)	Great	1	2	3	4	5
				Little					
075			D. Village Religious Official	Great	1	2	3	4	5
				Little					
077			F. Section Head of Religious Matters of Village Social Institute	Great	1	2	3	4	5
				Little					
078			G. Village Secretary	Great	1	2	3	4	5
				Little					

Great Certainty					Uncer./Cert.					Little Certainty
5	4	3	2	1	0	1	2	3	4	5

Transformed score										
00	03	05	06	07	08	09	10	11	13	16

Organization score = mean of the scores per indicator obtained from individual officials in each VICHA

4. Continued

Var #	Question Set and #	Program weight	Question and code
076	I.IIID 2.		E. Village Head Great 1 2 3 4 5 Little

Little Certainty 5 4 3 2 1 0 1 2 3 4 5 Great Certainty

Transformed score 00 03 05 06 07 08 09 10 11 13 16

Organization score = mean of the scores per indicator obtained from individual officials in each VICHA

5. Organizational complexity

065 I.IIIC 1. When you compare your knowledge on the culture and tradition of this village to your skill in carrying out tasks of village development, how important has your knowledge on the culture and tradition been in your election to your present office?

Important 1 2 3 4 5 Unimportant

Important Certainty 5 4 3 2 1 Uncert./Cert. 0 1 2 3 4 5 Unimportant Certainty

Transformed score 00 03 05 06 07 08 09 10 11 13 16

Organization score = mean of the scores per indicator obtained from individual officials in each VICHA

5. Continued

Var #	Question Set and #	Program weight	Question and code
066	I.IIIC 2		Do you feel that you have sufficient skills for carrying out the development tasks of this village? Sufficient 1 2 3 4 5 Insufficient
067	3		Do you feel that you have sufficient educational background for carrying out the development tasks of this village? Sufficient 1 2 3 4 5 Insufficient

Insufficient Certainty					Uncert./Cert.				Sufficient Certainty	
5	4	3	2	1	0	1	2	3	4	5
Transformed score 00	03	05	06	07	08	09	10	11	13	16

Organization score = mean of the scores per indicator obtained from individual officials in each VICHA

068	I.IIIC 4		When you compare the Pelita I to the Pelita II, to what extent have the educational and skill requirements been emphasized with regard to the development tasks of this village? In Pelita I Great 1 2 3 4 5 In Pelita I Little

5. Continued

Var #	Question Set and #	Program weight	Question and code
069	5		When you compare the Pelita I to the Pelita II, to what extent have you taken part in courses or short training programs for improving your knowledge and skills with regard to the development tasks of this village?

In Pelita I Great

1 2 3 4 5

In Pelita I Little

Pelita I: Great Certainty									Little Pelita I Certainty
5	4	3	2	1	0	1	2	3	4	5
Transformed score 00	03	05	06	07	08	09	10	11	13	16

Organization score = mean of the scores per indicator obtained from individual officials in each VICHA

6. Organizational autonomy

Var #	Question Set and #	Program weight	Question and code
055	I.IIIA 1		How convinced are you that the agreements in village assembly meetings assure successful implementation of development activities in this village?

Convinced

1 2 3 4 5

Not Convinced

6. Continued

Var #	Question Set and #	Program weight	Question and code

Convinced — Certainty 5 4 3 — Uncert./Cert. 2 1 0 1 2 3 4 — Not convinced — Certainty 5

Transformed score: 00 03 05 06 07 08 09 10 11 13 16

Organization score = mean of the scores per indicator obtained from individual officials in each VICHA

056 — 2 —

When you compare the Pelita I to the Pelita II, how often have results of the village assembly meetings NOT been carried out?

In Pelita I often: 1 2 3 4 5

In Pelita I not often

Pelita I; Often — Certainty 5 4 3 — Uncert./Cert. 2 1 0 1 2 3 4 — Not often — Certainty 5 — Pelita I

Transformed score: 00 03 05 06 07 08 09 10 11 13 16

Organization score = mean of the scores per indicator obtained from individual officials in each VICHA

6. Continued

Var #	Question Set and #	Program weight	Question and code
057	I.IIIA 3		How convinced are you that directions from sub-district head office and other governmental agencies at sub-district (particularly "special section"/k) assure successful execution of development activities in this village?

Convinced
1 2 3 4 5
Not Convinced

Convinced									Not convinced	
Certainty				Uncert./Cert.					Certainty	
5	4	3	2	1	0	1	2	3	4	5
Transformed score 00	03	05	06	07	08	09	10	11	13	16

Organization score = mean of the scores per indicator obtained from individual officials in each VICHA

I.IIIA 4 — When you compare the Pelita I to the Pelita II, how much have the sub-district head office and other governmental agencies at the sub-district given directions in regard to the implementation of the following in this village?

058 — a. Mass guidance (Bimas) — In Pelita I Much 1 2 3 4 5 In Pelita I Little

059 — b. Family Planning — In Pelita I Much 1 2 3 4 5 In Pelita I Little

6. Continued

Var #	Question Set and #	Program weight	Question and code						
060			c. Youth Up-Building	In Pelita I Much					
					1	2	3	4	5
				In Pelita I Little					
061			d. Administrative Improvement	In Pelita I Much					
					1	2	3	4	5
				In Pelita I Little					
062			e. Appointment/Dismissal of Village Government and Village Social Institute Officials	In Pelita I Much					
					1	2	3	4	5
				In Pelita I Little					
063	I.IIIA 5		When you compare the Pelita I to the Pelita II, how much has the village assembly meeting had to say in determining the amount of contributions of village members which goes to the sub-district head office for financing the development projects of the sub-district?						

In Pelita I Much

1 2 3 4 5

In Pelita I Little

Pelita I: Little									Much	Pelita I
Certainty				Uncert./Cert.					Certainty	
5	4	3	2	1	0	1	2	3	4	5
Transformed score	00	03	05	06	07	08	09	10	11	13	16

Organization score = mean of the scores per indicator obtained from individual officials in each VICHA

7. Environmental complexity

Var #	Question Set and #	Program weight	Question and code
110	I. VA 1.		When you compare the Pelita I to the Pelita II, to what extent has the economic condition of members of this village been improved? In Pelita I Great 1 2 3 4 5 In Pelita I Little
111	2		When you compare the Pelita I to the Pelita II, how extensive were the variations in the development activities of this village? In Pelita I Great 1 2 3 4 5 In Pelita I Little
112	3		When you compare Pelita I to Pelita II, to what extent has this village contributed financially to the subdistrict head office for financing development projects at the sub-district? In Pelita I Great 1 2 3 4 5 In Pelita I Little

Pelita I: Great									Pelita I: Little	
Certainty				Uncert./Cert.					Certainty	
5	4	3	2	1	0	1	2	3	4	5
Transformed score 00	03	05	06	07	08	09	10	11	13	16

Organization score = mean of the scores per indicator obtained from individual officials in each VICHA

7. Continued

Var #	Question Set and #	Program weight	Question and code
113	I. VA	4	When you compare this village to the neighboring village, to what extent has this village been less developed?

Great
1 2 3 4 5
Little

Great Certainty					Uncert./Cert.				Little Certainty
5	4	3	2	1	0	1	2	3	4	5

Transformed score	00	03	05	06	07	08	09	10	11	13	16

Organization score = mean of the scores per indicator obtained from individual officials in each VICHA

8. Resourcefulness

115	I. V B 1		When you compare the Pelita I to the Pelita II, to what extent have members of this village been willing to render their labors for public interests (mutual help) such as building village roads, mosques, etc.?

In Pelita I Great
1 2 3 4 5
In Pelita I Little

8. Continued

Var #	Question Set and #	Program weight	Question and code
116	2		When you compare the Pelita I to the Pelita II, to what extent have members of this village been willing to contribute financially for the development of this village? In Pelita I Great 1 2 3 4 5 In Pelita I Little
117	3		When you compare the Pelita I to the Pelita II, to what extent have members of this village given suggestions at village assembly meetings? In Pelita I Great 1 2 3 4 5 In Pelita I Little
118	4		When you compare the Pelita I to the Pelita II, to what extent were the following development facilities (such as bank, health care center, hybrid seed center, etc.) available in this subdistrict? In Pelita I Great 1 2 3 4 5 In Pelita I Little

Pelita I: Great Certainty					Uncert./Cert.				Little Certainty	Pelita I
5	4	3	2	1	0	1	2	3	4	5
Transformed score 00	03	05	06	07	08	09	10	11	13	16

Organization score = mean of the scores per indicator obtained from individual officials in each VICHA

8. Continued

Var #	Question Set and #	Program weight	Question and code
119	5		With the increase in village subsidy from Rp 100,000 to 350,000, how much time is required to get the money?

Quick
1 2 3 4 5
Slow

Slow Certainty				Uncert./Cert.					Quick Certainty	
5	4	3	2	1	0	1	2	3	4	5

Transformed score	00	03	05	06	07	08	09	10	11	13	16

Organization score = mean of the scores per indicator obtained from individual officials in each VICHA

120	I. VB 6		To what extent do you feel reluctant to discuss this village development problems with officials at the sub-district office?

Great
1 2 3 4 5
Little

Great Certainty				Uncert./Cert.					Little Certainty	
5	4	3	2	1	0	1	2	3	4	5

Transformed score	00	03	05	06	07	08	09	10	11	13	16

Organization score = mean of the scores per indicator obtained from individual officials in each VICHA

9. Accessibility

Var #	Question Set and #	Program weight	Question and code
083	I.V C 1		Throughout the year, how difficult is it to get to the village office from hamlets in this village? Easy 1 2 3 4 5 Difficult
084	2		Throughout the year, how difficult is it to get to the Sub-district Head Office from this village? Easy 1 2 3 4 5 Difficult
085	3		Throughout the year, how difficult is it to get to the Village Unit Bank from this village? Easy 1 2 3 4 5 Difficult
086	I.V C 4		Throughout the year, how difficult is it to get to the health care center from this village? Easy 1 2 3 4 5 Difficult
087	5		Throughout the year how difficult is it to get to the village cooperative from this village? Easy 1 2 3 4 5 Difficult

9. Continued

Var #	Question Set and #	Program weight	Question and code

Difficult — Easy

Certainty					Uncert./Cert.				Certainty	
5	4	3	2	1	0	1	2	3	4	5

Transformed score											
	00	03	05	06	07	08	09	10	11	13	16

Organization score = mean of the scores per indicator obtained from individual officials in each VICHA

10. Cosmopoliteness

034 I.II 1

Beside being ordered by your superior, how much have you acted to improve your skills related to your present tasks, such as reading more extensive pamphlets, listening to village radio programs, etc.?

Much

1	2	3	4	5

Little

Little — Much

Certainty					Uncert./Cert.				Certainty	
5	4	3	2	1	0	1	2	3	4	5

Transformed score											
	00	03	05	06	07	08	09	10	11	13	16

Organization score = mean of the scores per indicator obtained from individual officials in each VICHA

10. Continued

Var #	Question Set and #	Program weight	Question and code
035	I.II 2		Assuming, with the permission of your superior, a school runs a free short training course related to your present development tasks in this village government, would you be interested in taking part in it?

Interested

1 2 3 4 5

Not Interested

Not interested									Interested
Certainty				Uncert./Cert.					Certainty
5	4	3	2	1	0	1	2	3	4	5

Transformed score	00	03	05	06	07	08	09	10	11	13	16

Organization score = mean of the scores per indicator obtained from individual officials in each VICHA

037 I.II 3

Assuming, with the permission of the government, there might be a non-governmental organization offering you a job (which uses your skill) with higher financial reward, would you move to the other job?

Move

1 2 3 4 5

Not Move

038 4

Assuming you are given sufficient capital to start a business of your own as your main job, would you move to your own business?

Move

1 2 3 4 5

Not Move

10. Continued

Var #	Question Set and #	Program weight	Question and code

Not move Certainty					Uncert./Cert.				Move Certainty	
5	4	3	2	1	0	1	2	3	4	5
Transformed score 00	03	05	06	07	08	09	10	11	13	16

Organization score = mean of the scores per indicator obtained from individual officials in each VICHA

040 I.II 5

Do you feel that working on another job with better financial rewards in the town is more important than keeping good relations with other officials with whom you work in developing this village?

Important
1 2 3 4 5
Unimportant

041 6

As you go about your day-to-day decision-making related to your tasks in village government, to what extent has seeking advice from community leaders from outside this village been more important than that sought from community leaders within this village?

Important
1 2 3 4 5
Unimportant

10. Continued

Var #	Question Set and #	Program weight	Question and code

	Unimportant Certainty					Uncert./Cert.				Important Certainty	
	5	4	3	2	1	0	1	2	3	4	5
Transformed score	00	03	05	06	07	08	09	10	11	13	16

Organization score = mean of the scores per indicator obtained from individual officials in each VICHA

NOTE: 1. There were four questionnaire sets employed in this study. This Appendix presents only the questions from the first set.

2. All the questions were administered in Indonesian language.

APPENDIX D

Table D1. Solution to the recursive equations using the least square procedure with standardized items

Regression number	Dependent variable	Independent variable	B	B*	SE	F
1	Orau	Ecop	-.43156	-.43680	.09396	21.093*
		Reso	-.29226	-.30143	.09221	10.045*
2	Ocop	Reso	.20732	.21027	.09032	5.268*
		Acce	.04919	.05277	.08121	0.368
		Lorg	-.11329	-.11234	.10127	1.252
		Ergo	-.11249	-.10798	.10908	1.064
3	Cent	Ecop	.09803	.09641	.13484	0.529
		Reso	-.17696	-.17733	.12320	2.063
		Acce	-.13498	-.14308	.07747	3.035**
		Orau	.12589	.01223	.11464	0.012
		Ocop	-.38278	-.37821	.08815	18.858*
4	Ledi	Ecop	-.02397	-.02603	.10093	0.056
		Reso	-.09593	-.10612	.09996	0.921
		Acce	.30652	.35870	.06377	23.105*
		Lorg	.07501	.08113	.08367	0.804
		Ergo	-.03676	-.03849	.08467	0.189
		Cent	-.42704	-.47145	.07123	35.941*
5	Opga	Orau	-.72040	-.68801	.06525	121.899*
		Ocop	-.04532	.04401	.06968	0.423
		Cent	-.16853	-.16566	.07721	4.765*
		Ledi	-.17054	-.15184	.07839	4.732*
6	Adap	Orau	-.70571	-.68219	.07016	101.187*
		Ocop	-.07127	-.07006	.06955	1.050
		Ledi	.13264	.11954	.07381	3.230**

*Significant at .01 level.

**Significant at .05 level.

Table D2. Reduced path model using the least square procedure with standardized items

Regression number	Dependent variable	Independent variable	B	B*	SE	F
1	Orau	Ecop	-.43156	-.43680	.09396	21.093*
		Reso	-.29226	-.30143	.09221	10.045*
2	Ocop	Reso	.26818	.27200	.08453	10.066*
3	Cent	Ocop	-.39967	-.39490	.08190	23.812*
		Acce	-.13847	-.14678	.07634	3.290**
4	Ledi	Cent	-.38527	-.42534	.06553	34.564*
		Acce	.30884	.36141	.06182	24.955*
5	Opga	Orau	-.72835	-.69560	.06395	129.734*
		Cent	-.18752	-.18432	.07131	6.915*
		Ledi	-.17459	-.15544	.07797	5.015*
6	Adap	Orau	-.68898	-.66602	.06824	101.930*
		Ledi	.12284	.11070	.07320	2.816

*Significant at .01 level.

**Significant at .05 level.